Crisis Politics:

Risk, Relative Prices and Political Change·

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Economic crises are prominent explanations of political change. Most scholars suspect that crises play a catalytic role in national and international politics, although there is little agreement as to what that role is, or the specific causal mechanisms by which economic crises induce political change. Various authors have made economic crises central to studies of, among other phenomena, revolution, politics within advanced industrialized states, international regimes, American trade policy, and perhaps most generally, political development. Despite the large number of case studies, however, there remains a dearth of systematic theorizing about the pathway from economic crises to political change. The most recent financial crisis, which began in 2007, ignited new interest in crisis and its role in political change (Roubini and Mihm 2010; Chinn and Frieden 2011; Kahler and Lake 2013). Although crisis as a metaphor abounds, and analogies are frequently made to earthquakes and other natural disruptions (Rajan 2010), little theoretical or empirical work has appeared on what actually constitutes a crisis and how and why they bring about political change.

This paper explores a theoretically grounded mechanism by which economic crises lead to political change. More specifically, it emphasizes how specific features of crises, namely, heightened risk and changes in relative prices, can trigger dramatic political change. We argue that the heightened risk environment during economic crises can increase incentives for socio-political actors to abandon existing institutions and throw existing political coalitions into flux. Changes in relative prices, in turn, can alter their interests, giving rise to new political alignments. Although we cannot begin to provide detailed answers to all the questions raised by the study of crises, this essay aims to develop a general conceptual approach to the study of political crises and change that allows scholars to identify empirically *ex ante* politically consequential crises (which is, after all the first step to studying them) according to theoretically

informed criteria. Thus far, political science scholarship on economic crises has been held back by the inability of scholars to do so, which gives current work on politics and crises a post-hoc quality(that is, crises are identified by their effects, rather than by ex-ante criteria). Our effort therefore seeks to bring some measure of clarity and conceptual order to the empirical study of crisis-led political change. In addition, while a more rigorous empirical assessment of its central premises must await future work, it provides suggestive evidence that periods of crisis-induced political change can in fact be identified, and understood, in terms of the central mechanisms that this paper proposes.

Section I draws upon the literature on collective action and institutions to propose a simple model of politics in non-crisis conditions. Section II sets forth a definition of crisis based not on the *ex post* observation of its impact but on an *ex ante* assessment of its features: a crisis is a substantial increase in risk and changes in relative prices, altering the expected gains from current political activity. This section explains why and how crises affect political choices and explores the ways in which periods of economic disruption affect political change. Throughout this section, the focus is on the effects of crisis on the political and economic strategies of various actors and institutions. Section III outlines our methodology and examines relative price changes and risk, based on historical price data and volatility in stock market returns. Based on these new measures, we identify *ex ante* three major economic crises that, in a form of face validity, coincide with received wisdom on periods of intense political change in the United States: the Great Depression of the 1930s, the Crisis of the 1970s, and the current Great Recession. As explained below, the Tech crash of 2000-2001 might be considered a fourth crisis period, but it is the smallest in magnitude of the four and we do not expect it to have the same political effects of the other three. Section IV presents brief historical evidence linking our

theory of crisis to large scale changes in political coalitions in the United States. Given unusually large increases in volatility and relative price dispersion since 2007, we also predict substantial political changes within the next few years.

Politics in Normal Times

In order to explain the catalytic role of crises, we begin with a rudimentary model of politics in non-crisis periods that draws upon the extant literature in open economy politics.[1] We start with a simple framework for understanding social interaction in a stable environment in which individuals, often aggregated into groups by their shared policy preferences and referred to generically as "agents," pursue their interests in both the economic and political arenas. In the economic arena or market, agents maximize their expected returns through investment in new technologies or plant and equipment, production of quality goods and services, and setting and sometimes manipulating prices of their output – all undertaken with an eye toward the strategies of their economic competitors and consumers. In the political arena, agents seek favorable policies from government that will increase their expected returns. Such policies may solve simple coordination problems between firms, such as standards setting, or be more redistributive, as in tariffs or non-tariff barriers to trade that reduce import competition and create rents for existing producers. In short, the difference is between competing based on an agent's own resources, knowledge, and creativity within an existing market and changing the rules of the market by seeking favorable public policies.

In considering this tradeoff between economic and political activity, we focus mostly on the material interests of agents, We recognize that interests vary along multiple dimensions, including religion, gender, culture, and the desire for social stability, and are often subject to

[1] For a survey and evaluation of open-economy politics, see Lake (2009).

framing effects.[2] Yet, we emphasize material interests because we believe they are basic to politics—all actors are concerned by their material well being, whereas other dimensions appear more or less salient under different circumstances--and lend themselves to empirical analysis over time (see section III below). Most important, relative price changes create winners and losers as a result of political and economic policies pursued by the coalitions that we place at the center of our analysis. Agents whose income is tied to sectors that enjoy increasing relative prices are better off, and share interests with others who benefit from similarly increasing relative prices, while agents who receive income or own assets in sectors that experience decreasing relative prices are typically worse off, and share interests with others who are similarly disadvantaged.

Since both political and economic action have opportunity costs, agents evaluate the expected return from their activities in markets and politics on the basis of how successful they expect to be in both, arbitraging between the two arenas (Becker 1983). Relatively more (less) successful economic agents are less (more) prone to turn to politics, especially if they expect the political system to be more (less) hostile to them than the economic environment. Economically successful agents have a relatively high rate of return on time, effort, and other resources in the market, and thus face higher opportunity costs for entering the political arena. Conversely, all else constant, economically unsuccessful agents will be more likely to turn to politics in pursuit of their interests.

Within the political arena, rates of return are determined, at least in part, by the policy adopted by the government. Indeed, agents lobby the government to adopt policies that will

[2] Even on attitudes toward globalization, the quintessential economic policy issue of the contemporary era, non-material factors influence how individuals conceive of their interests (Sabet 2014).. On inequality aversion, see Lu at al. (2012). On family status, see Goldstein et al. (2007). On framing, see Naoi and Kume (2011).

benefit them. In this process, collective action problems are central, and political choice is ultimately a decision based upon the costs and benefits of participating in mass mobilization. Agents typically form political coalitions to influence the government to enact favorable policies. Agents may compromise on their ideal policies to create a larger coalition with greater political clout or potential impact, and coalitions do not always succeed in getting their preferred policies. Nonetheless, politics is, in large part, the shaping of alternative coalitions in pursuit of favored policies. In this way, a political coalition is an investment in a particular set of policies that, in turn, create a stream of expected benefits for the agents in that coalition. By analogy to the standard capital asset pricing model (CAPM), a coalition is a political asset that yields an expected return via policy plus some risk inherent in the political environment (the set of coalitions and political institutions) that supports that policy.[3] Agents then choose among potential coalitions to secure the policy with the highest expected return. Having assessed the expected returns from a coalition and its policy, agents then compare this expected "political" rate of return to the market rate of return, as above, choosing that which promises greater expected benefits.

In assessing the political rate of return, two variables matter. First, agents are concerned about the benefits accrued from the policy directly, equivalent to the "risk-free" rate of return on any asset within the CAPM. Second, agents will also be concerned with risk, just as with the financial instruments typically assessed through CAPM that fluctuate in value and the income stream they produce over time. Crucially, and this will play an important part in our theory of

[3] The CAPM is $r_a = r_{rt} + \beta_a(r_m - r_{rt})$, where r_a is the rate of return on an asset, typically a financial instrument, r_{rt} is the rate of return on a risk-free asset (i.e., Treasury bills), r_m is the overall market rate of return, and β_a is the risk of the particular asset. β_a is typically measured as the volatility in the price of the asset over some period of history (e.g., 10 months, 10 years, or any theoretical or practical window). By analogy, the political risk of different coalitions and policies is substituted into the standard formula for β_a. We discuss operationalization of political volatility below.

crisis below, political risk is a function of volatility in policy, which in turn is a function of both the agent's own decision to support the coalition and the choices of other agents, especially whether they are likely to continue to cooperate in supporting the same policy or will defect to some alternative coalition and policy. Thus, agents must be attentive not only to the effects of policy volatility on their own returns, they must also be concerned with the expected returns and strategic calculus of current and potential coalition partners. The greater the volatility in policy, and thus expected returns, the greater the political risk. Just as with any investment, policies with lower risk-free returns and lower volatility may be preferred to those with higher risk-free returns but even greater volatility. A policy that provides smaller fluctuations in returns to coalition members will be preferred, all else constant, to one that suffers from larger fluctuations.

When the value of expected political returns are high, stable coalitions can be expected to arise. Individuals will be more likely to join in collective action, and coalitions among groups will be more likely to form. In other words, individuals and groups are more likely to enter into and maintain credible political bargains with others, even if the bargains have immediate costs, if they believe that the coalition will produce policies likely to increase their returns over some time horizon. Labor can support farmers' demands for subsidies, even if the result is more expensive food, if workers expect farmers to support their demand for, say, unemployment compensation, reflation or trade protection. The coalition of iron and rye in late nineteenth century Germany is a classic example of a coalition that produced a set of policies than neither group preferred on its own but that, together, produced higher political than market returns for a sustained period.

The political calculus to join and stay within a particular coalition might often seem to be a knife's edge choice where the agent is nearly indifferent between competing in the economic or

political arena and choosing between alternative coalitions and policies. In normal times, however, existing political coalitions will be relatively robust. First, estimating expected returns from some alternative policy and coalition can be extremely difficult, especially with a new and previously untested policy. How the policy itself will work, whether an alternative coalition can be put together, and whether other agents will stay in the coalition over time can be hard to assess, increasing the risk of alternative policy coalitions and creating a status quo bias.

Second, agents will also become vested in the specific policies produced by the coalition, actually transforming their interests over time (Gourevitch 1986). Some actors, for whatever reason--specific capital, specific skills, geographical immobility--are more tied to their current economic activities than others, whose assets are more mobile.[4] The more mobile or liquid the assets, the lower the capital loss that accrues to the assets' owners if they are forced to sell. The assets in question might be physical and more or less specific to a particular use, or they might consist of skills that are more or less tightly tied to their current employment. Unskilled labor is generally regarded as more mobile than skilled labor. Farmland typically has fewer alternative uses than urban tracts. At all times, both normal and "hard" times, fixed asset holders are more likely to enter the political arena; they may have more at stake in policy, but they also have fewer attractive options to cope with adverse circumstances. With lower exit opportunities, they grow more vocal. Mobile asset holders, on the other hand, can redeploy their investments to more profitable sectors or activities, and will be comparatively less likely to seek redress through government intervention. With more exit opportunities, the incentives to pursue "voice" are lower.

Public policy also influences patterns of asset acquisition, however. Under periods of

[4] On asset specificity, see Klein, Crawford, and Alchian (1978) and Williamson (1975; 1985). As a variable in politics, see Frieden and Rogowski (1996) and Hiscox (2002).

normal politics, enduring coalitions and policy stability prompt agents to invest in more assets that are fixed or dependent on the continuation of the prevailing policy regime. Comparatively disadvantaged industries that receive protection will maintain and perhaps even expand investments in their sector. Farmers who receive subsidies will acquire additional land for cultivation, and will reinvest returns back into agriculture rather than investing in more diversified portfolios. Comparatively advantaged industries react the same way. If free trade is expected to prevail, they will expand investment and, in turn, production to meet anticipated global demand. In this way, agents increase their fixed investments and become locked into a specific policy regime, and they will increasingly act to defend policies from challenge as the environment evolves. This reinforces the status quo bias as long as expectations of future returns remain robust.

Thus, in normal times, politics favor incrementalism and act as constraints on political change. Like run-off from a mountain, individuals and groups normally follow the existing riverbed, while modifying it over time, rather than cutting a new channel. In normal times, investments in economics or politics become self-reinforcing. The coalition in support of a particular policy becomes, over time, more deeply vested or entrenched in that policy, making political change less likely. It takes some significant shock to disrupt such a political equilibrium.

II. Politics in Hard Times

Having posed a simple framework for understanding politics in normal times, it is now possible to define the nature and role of crises in political change and to identify why and how crises exert their disruptive effects. *Economic crises are large increases in risk and changes in relative prices that dramatically alter the expected future gains from current political activity relative to other alternatives.* A crisis must affect a majority of the relevant individuals and

groups in significant ways, and be concentrated in time so that multiple actors are simultaneously thrown into flux. We stress that *both* increases in political risk and changes in relative prices must be present to create the large political changes normally associated with "crises."

As above, the degree of political risk affects the expected future returns from political activity, and in turn the propensity of individuals and groups within a society to form and sustain political coalitions. When volatility increases, it reduces the expected value of the policy and makes alternative coalitions or even market activity potentially more attractive. Even if the agent's own returns do not become significantly more volatile, increases in the volatility of a coalition partner's returns may cause that partner to reevaluate its policy and coalition preferences and choice between political and market activity. Similarly, increased volatility even of non-coalition partners may open up the possibility of new coalitions that may produce even more attractive policies than at present. Thus, in assessing political risk, it is not only the volatility of the asset held by an agent that matters, but systemic volatility or the volatility of all assets in the economy. It is by reducing the expected value of returns from policy across the economy, rather than for any particular agent, that increased volatility shuffles coalitional possibilities. Thus, only generalized volatility throws politics into flux, rendering politics "plastic" in Gourevitch's famous phrasing.

While volatility opens coalitional possibilities and throws politics into flux, it does not, by itself, create political crises. Political openness does not necessarily lead to change, especially for agents with prior investments in specific assets. To understand how and in what ways people respond to increased political risk, we must turn to the second element of crisis, namely, a large change in relative prices. A change in relative prices--a shock, surprise, or new information in much of the economic literature--alters the incentives facing individuals and expected future

gains from existing policies. Relative prices are always varying as a consequence of economic growth and development, technological innovation, changes in consumer tastes, and government policies themselves. Under normal circumstances, changes in relative prices are gradual, incremental, isolated within a few sectors, and--within limits--predictable. A crisis, on the other hand, is distinguished by not only an increase in volatility but also a large change in relative prices that affects a large number of actors.

Although the shock could be endogenous or exogenous, political or economic, it is simpler to regard it as exogenous and economic for our rudimentary purposes.[5] The shock we are considering thus acts to alter market prices suddenly. The sudden change of prices for certain goods alters the society's relative price structure. Other goods become cheaper or more expensive compared to the affected goods and, as discussed below, the overall dispersion of relative prices increases. During the Great Depression, for example, prices of primary commodities dropped fastest and furthest, prices of standardized (mostly labor-intensive) manufactures dropped somewhat less, and prices of more sophisticated (mostly capital-intensive) manufactures dropped least of all – as did prices of non-traded goods and services.[6] As we will discuss below, these relative price trends shaped the emergence and composition of the New Deal coalition in fundamental ways.

Two sets of responses can be expected to follow from a change in relative prices. First, in the economic arena, actors will move out of now-less-attractive activities and into now-more-attractive activities. If the world price of wheat drops precipitously and is expected to remain low, for example, farmers will shift production from wheat to other crops, and some may even leave farming. Second, actors who are now facing less attractive economic circumstances

[5] On endogenous crises, see Kahler and Lake (2013).
[6] On relative price changes during the depression, see Kindleberger (1973, 143 and 188).

will move into the political arena. In our previous example, wheat farmers who were before making a good living will, with a major drop in wheat prices, exert increased pressure on the government to support grain prices, subsidize exports, ease taxation, or otherwise aid troubled farmers. This is especially true for actors whose assets are fixed in specific sectors of the economy or who are dependent on a particular policy regime. Faced with large changes in relative prices, liquid asset holders will mostly redeploy investments from one economic activity to another. The more illiquid (fixed) the assets, the more difficulty their holders have in redeploying in response to a change in relative prices. Holders of relatively fixed assets cannot easily change their economic focus, but they can shift some of their resources (such as their time and energy) into the political arena to search for support. Everything else equal, the more fixed the asset, the more likely its owner is to engage in the second form of resource reassignment, from the economic arena to politics. In summary, then, a shock causes a shift in relative prices and resources are subsequently reallocated in two directions: from less to more profitable economic activities, and from the economic to the political arena.[7]

A simplified depiction of the economic and political result of an exogenous shock thus runs on two tracks—politics and economics-- over two periods. In the first period, those with relatively mobile assets shift them into more attractive areas of economic activity, while troubled fixed asset-holders concentrate on political activity. As fixed asset-holders in difficulty redouble their political efforts, they are likely to receive some at least short term relief from now more sympathetic governments. Policy in this period will thus reflect the actions of the fixed

[7] A favorable change in relative prices might also lead previously politically active actors to abandon political activity; thus some protectionist forces reduced their lobbying as the dollar depreciated after 1985. It should be noted that the ability of individuals and groups to move into the political arena will also be influenced by their propensity for collective action. This propensity is determined by many factors other than the level of uncertainty, such as the size of the group and its effective use of selective incentives to maintain cohesion. These considerations are, however, outside the scope of the present exercise.

asset-holders who have successfully overcome their collective action difficulties. In the second period—more generally, over the long run—the economic activities relatively favored by the shock will grow in importance as resources shift into them. The long-term growth of these activities will lead to a new balance of political power more favorable to these sectors.[8]

It is the combined effect of both increased political risk and shifts in relative prices that produce political change. An increase in political risk makes the current coalition and its associated policy less attractive overall and less attractive compared to the economic or market option. It may also make the current coalition less attractive than other coalitions and possible policies, but this will be difficult to estimate in a time of general volatility. Changes in relative prices shuffle the interests and, thus, the coalitional possibilities of agents. Depending on the direction of change in relative prices, new winners and losers from politics are likely to emerge, creating new possibilities for agents to form new political alliances.

Conversely, political risk and relative prices are each, by themselves, unlikely to produce significant political change. Heightened risk, in the absence of changes in relative prices is likely to breed stasis; although coalitions will be more fragile, in the absence of any significant changes in interests vested interests are likely to produce coalitional and policy stability. Changes in relative prices without increased risk will produce shifts in policy, sometimes dramatic, but these political conflicts will likely play out within existing political coalitions. Such prices shocks, by themselves, will typically not be sufficient to cause a major political realignment in the face of interests vested in the old order who will use their political power to mitigate relative price changes to the extent possible. *Both* increased volatility and large changes in relative prices are necessary to send an otherwise stable political system into crisis.

[8] For a formal presentation as applied to trade, see Mussa (1974); also Rogowksi (1989).

The effect of these two variables is theoretically indeterminate at this time. Our approach explains the origins and effects of crises better than political outcomes. We can identify "winners" and "losers," or sectors that enjoy increased returns due to positive relative price shocks and sectors that suffer from decreased returns (see below). But once the coalitional possibilities open up, multiple possible coalitions will exist, and our ability to predict exactly which one will form is limited. The prior equilibrium found in normal times is shattered. A coalition of "losers" might arise in the short term that then uses policy to reverse the effects of relative price shocks; this will slow if not completely offset their political demise. Through policy, losers will then lose less and winners will win less than if the relative price effects were allowed to pass through directly into the economy. Farmers in the Great Depression, for instance, succeeded in getting agricultural price supports that arrested their political decline. Conversely, coalitions of "winners" might arise that allow the full effect of the relative price shocks to wash through the economy and, thus, ensure their political triumph over the longer term. All sorts of mixed coalitions are also possible, where relative losers ally with relative winners in a policy regime that is ideal for neither but acceptable to both--as in the coalition of Iron and Rye in late-nineteenth century Germany. Such "Baptist and bootlegger" coalitions of unlikely partners may be especially prominent among fixed asset holders—both winners and losers—who enter the political arena. Particularly important in the formation of new coalitions are political entrepreneurs who can envision, identify the raw interests at stake, and negotiate new coalitions among groups that may not have entirely complementary interests. Exactly how political entrepreneurs pull off such feats of political engineering is beyond our theory. This indeterminacy extends to the timing of political change following economic crises as well. As crises shatter the prior equilibrium, exactly when a new coalition will form remains somewhat open – and may not even be entirely

clear to those living through it. It is unlikely that even those in the New Deal coalition (see below) understood the epic change in which they were engaged. Similarly, no one involved in the political realignment of the 1970s likely imagined the political polarization of the country into "Red States-Blue States" that eventually resulted. Dating the timing of a "sea change" remains beyond our model. Even if we cannot predict which new coalition will necessarily form or when, however, we can identify political crises as arising from the joint effect of increased political risk and changes in relative prices.

Finally, a focus on risk and relative price changes also highlights why economic crises tend to diffuse internationally so readily, or why local crises become global crises. The interests of actors in many countries are shaped by the common structure of relative prices within the global economy. To the extent that national markets are linked through trade and investment, changes in relative prices in one economy will change relative prices in others as well. Likewise, increased volatility in one country will likely lead to increased volatility in other countries who have economic ties or see themselves as similar or comparable to the first. This is direct in linked financial markets, as stock market volatility in one country will be reflected immediately in other stock markets listing similar assets. More generally, however, expectations of the future in one country are premised on present developments in others who serve as models for the first (Simmons and Elkins 2003). Thus, the same mechanisms that produce crisis in a single country will tend to diffuse to other related states, creating correlated crises that may, nonetheless, differ in how they are resolved and with what effect.

III. Increased Volatility and Relative Price Change in Crises

In the remainder of this paper, we demonstrate that abnormally high political risk and relative price shocks are associated with commonly regarded economic crises and may, in fact,

be leading or at least contemporaneous indicators of political change. As we explain in greater detail below, we operationalize political risk by stock market volatility (S&P 500) as estimated by a generalized autogressive conditional heteroskedasticity (GARCH) model. We measure relative price shocks by the dispersion of available producer price indices. We focus only on the United States from 1900 to 2012 due to data availability. This precludes us, sadly, from examining any of the major 19th century crises. A similar analysis could be conducted on other countries, but we confine our investigation here to the United States for reasons of space. Moreover, we should underscore that the following analysis is not offered as a rigorous test of a theory; our purpose, rather, is to carry out an empirical "plausibility probe" of the conceptual scheme sketched in the sections above. To the extent that this preliminary empirical exploration allows us to credibly identify crisis periods, as well as tentatively link political change to increases in political risk and changes in relative prices (in the following section), our efforts in the following two sections will, hopefully, set the stage for more rigorous future work.

In what follows, we examine trends in stock market volatility and relative price changes from 1900 to the present, identifying those periods characterized by high values on both indicators, which we consider periods of "crisis politics." To the extent that the time periods we identify through these measures coincide with economically turbulent historical periods that are commonly considered eras of significant political change, the face-validity of these measures as markers of politically consequential crises is tentatively established. Indeed, our measures identify two major eras of crisis politics in the twentieth century--the Great Depression, and the troubled economic times of the 1970s--that are commonly regarded as dramatic periods of political change in American history. In addition, our measures suggest that the "Great Recession" will still be politically consequential; that volatility and relative price dispersion during the Great

Recession are second only to the levels reached during the Great Depression suggests that the conditions are ripe for significant political change in our own day.

Heightened political risk is crucial to our theory of crisis. Like all other analysts, we cannot measure risk directly. Rather, following the CAPM, we operationalize risk as the volatility in asset values, measured by share prices for publicly traded firms. Unlike economic risk in the CAPM, which focuses on volatility in the value of a single financial instrument (e.g., share prices for a single corporation), we measure political risk by volatility of the overall stock market in the United States, specifically, the volatility of the S&P 500 index. Recall that political risk is not just the effect of policy on the volatility of the agent's asset, but also that of its coalition partners and potential partners. As the volatility of the stock market as a whole increases, it increases the risk that partners will defect from the coalition even if the agent's own choices would not otherwise change. For this reason, political risk can be captured only in a broad-based measure of volatility, such as the S&P 500 index. In turn, our broad-based measure of volatility also discriminates between our notion of political risk and economic risk of single assets, whether or not the owners of those assets engage in economic or political activity.

We estimate stock market volatility through an asymmetric GARCH model, as explained in the Appendix (Section A.1). In conventional econometric models, the variance of the disturbance term is assumed to be constant. However, many economic time series exhibit periods of unusual volatility followed by periods of relative tranquility — "hard times" and "normal times." A large literature finds evidence of conditional heteroskedasticity in asset returns, with previous findings strongly suggesting that variance in asset price returns is dynamic over time (Theodossiou 1994; Theodossiou and Koutmos 1994; Tufte and Lobo 1998). Our methodology loosely follows that of Bernhard and Leblang (2006). We first estimate the GARCH model using

weekly closing price data from, as noted, the S&P 500 index from January 1900 to December 2012. The weekly S&P index is the only comprehensive stock index that spans the entirety of the twentieth century.[9] Since we are primarily concerned with percentage changes rather than price levels, we estimate all models using log differences of the index. We index volatility to the most recent volatility value available, thus setting December 2012's predicted value to 100. Figure one plots our results (we plot the volatility series at monthly intervals in order to facilitate comparison with our relative price series below):

Figure 1 About here

Abnormally high stock market volatility is not, on our account, sufficient to trigger political change; as we noted in our theoretical discussion, periods of elevated risk must coincide with significant relative price change in order for political change to ensue. To measure changes in the relative price structure of the economy, we calculate the variance of monthly changes in producer price indices across a sample of major industries, a procedure suggested by Grier and Perry (1996). The measure and indexed industries are described in the Appendix (section A.2). Only a handful of price indices are available for the entire period between 1900 to the present; as a result, we divide our sample into two sub-periods (1900 to 1950 and 1950-present) for analysis. Relative price data is only available at monthly intervals, which we smooth by taking quarterly centered moving averages.

This empirical measure of relative price dispersion derives from our earlier theoretical argument on relative prices. During ordinary times, monthly sectoral price movements are relatively stable across time periods, and political coalitions develop around these consistent and

[9] We performed similar analyzes for many different overall and sectoral stock market indices for shorter time periods. Although there is considerable sectoral variation, the results for the other overall indices are usually consistent with those for the S&P index. All results are available from the authors on request.

predictable price signals. In crisis periods, however, these patterns are disrupted. As the prices of some goods increase or decrease relatively quickly, the variance of sectoral price changes increases as well. During crisis periods, therefore, we expect the variance of monthly sectoral price changes to be significantly greater than in non-crisis periods.

Figure 2 About here

We can now bring together our empirical measures of risk (stock market volatility) and relative price change (dispersion in producer price indices) to identify periods of "crisis politics." While increases in volatility and relative price dispersion must be temporally proximate in order for us to consider any given year a "crisis year," it is unrealistic to expect these increases to coincide perfectly. We therefore define a crisis period as a year in which both of our volatility and relative price measures were at least one standard deviation above their respective means for at least two out of three months in any given quarter of that year. Note that we do not require our two series to breach the one-standard deviation threshold during the *same* quarters in order to consider a particular year a crisis; for instance, if our volatility series breaches the one standard deviation threshold for at least two months of the year's first quarter, while our relative price series does so for at least two months during a different quarter in which the volatility series does not meet the standard deviation threshold, we still consider the entire year a crisis. Figures 3a and 3b plot the relative price and volatility series in conjunction (for both the pre-1950 and post-1950 periods) in order to identify crisis years according to the criteria discussed above.

Figure 3a and 3b about here

Our data suggest that stock market volatility was at least one standard deviation above its mean for at least two months in a given quarter in the following years: 1929-1934, 1937-1940, 1974-1975, 1987, 2000-2001, and 2008-2009. Relative price dispersion was at least one standard

deviation above its mean for at least two months in a given quarter in the following years: 1902-1903, 1915-1917, 1919-1921, 1933, 1973-1974, 1990-1991, 2000-2001, 2005, and 2008. As we discussed above, we locate full-blown "crisis years" at the intersection of these two sets, producing crises in 1933, 1974, 2000-2001, and 2008. We summarize these results in Table 1.

Table 1 About here

Though still somewhat rough (our one-standard deviation threshold could benefit from further refinement in future work), our volatility and relative price dispersion indices allow us to identify periods in which economic crises might be expected to produce political change according to theoretically-anchored ex-ante criteria, rather than the historical record itself. That the biggest episodes of crisis-led political change we identify overlap with major episodes examined by Gourevitch (1986), and that are conventionally regarded as periods of dramatic political change in American history, testifies to the face validity of our measures. The one exception is the crisis of 2000-2001, which forms a "false positive" of a crisis that did not, apparently, produce sweeping political change in the United States. It is important to note, however, that this is the smallest crisis of the four identified, just barely exceeding the threshold of one standard deviation above the mean for stock market volatility (see Figure 1) and with the smallest increase in relative price dispersion.[10] The one-standard deviation threshold is, admittedly, somewhat arbitrary, a rough rule of thumb rather than a precisely defined rule. In the remainder of this paper, we drop the possible crisis of 2000-2001 from consideration in the historical cases.

Our effort to "postdict" the politicization of economic crises and the time periods in which economic crises triggered substantial political change helps to clarify both the historical

[10] Note that because the two series on relative price dispersion differ, the levels pre- and post-1950 are not directly comparable.

record, as well as our own time. With respect to the former, our approach allows us to better understand certain "non-events" in American political history. That is, many (often severe) economic and financial crises (as identified by economists) do not spiral into broader political crises that give rise to substantial political change. By clarifying the conditions under which economic crises have political repercussions, we are able to explain this historical variation. For instance, while the financial crisis of 1907 was a critical event in twentieth century American economic history, it is not associated with substantial political realignments. To be sure, it occurred in the middle of the Progressive era and preceded an important split in the Republican Party in the 1912 election; however, its political effects were (especially compared to other economic crises) fairly short lived. Our account suggests that the reason is that while this economic crisis was marked by substantial increases in risk (as indicated by stock market volatility), relative price change was muted. Conversely, World War I was accompanied by significant economic turmoil, as witnessed by dramatic fluctuations in relative prices; however, it did not disrupt the political status-quo because the risk environment remained stable, allowing actors to accommodate these price changes within existing political structures. Our deductive approach to the question of economic crises and political change, in short, can explain economic crises that were "dogs that didn't bark," politically speaking; prevailing inductive approaches, of course, cannot explain this important variation.

In addition to casting light on the historical record, our approach may help to clarify our own times (as well as future economic crises). Volatility and relative price dispersion reached their highest levels since the Great Depression in 2008, during the height of the "Great Recession." This suggests that the Great Recession was not simply an economic crisis that leaves the political status-quo unchanged, but a broader political event that will have political

repercussions into the future. Though more historical perspective is needed, we present some preliminary ideas on how the Great Recession is altering political arrangements in our own time in the section below.

IV. Economic Crises and Political Change: A Brief History

We understand political change as significant shifts in the structure of political coalitions. Political coalitions might be mapped in any number of ways, and there is no readily available quantitative measure that can represent their structure (developing such measures may therefore be a useful line of future research). Here, we draw on historical scholarship on the emergence and demise of U.S. coalitions to explore whether significant changes coincide with the crisis periods we have identified.[11]

In an influential work on American political development, Bensel (1984) argues that throughout history, sectional cleavages have been the essential axis along which political coalitions have formed in the United States. Bensel identifies sectional conflict as occurring between geographic units called "trade areas," which are each constituted by core urban centers and peripheral regions that are relatively less developed. The precise boundaries of trade areas (which evolve over time) and the methods used to determine these boundaries (which, of course, are not coextensive with political boundaries) need not detain us here; the key point is that trade areas are internally constituted by a core-periphery structure, and that the specific pattern of internal core-periphery relations determines how trade areas relate to each other at the macro-level. In particular, where urban centers dominate a trade area's economy (i.e. where the periphery is dependent on the core economy for its prosperity), the trade area is considered a "core" zone in the context of the nation's broader political and economic geography; in contrast,

[11] Further developments of his approach are in Bensel 1991 and Bensel 2000.

where the hinterland's extractive, raw materials base is relatively more important to a trade area's economy than its manufacturing center, the trade area as a whole is considered a peripheral zone at the aggregate level. More concretely, this conceptual framework implies a sectional divide in America's political geography throughout modern history between an industrial core consisting of trade areas in the Northeast and Midwest, and an underdeveloped periphery in the Southern and Western (i.e. Sunbelt) regions. Antagonistic economic interests between core and peripheral trade zones have given rise to political conflict between these areas; Bensel conducts roll call analysis on selected bills from the House of Representatives to quantify the severity of "sectional stress" along the core-periphery divide. While the form and strength of the sectional divide, as well as its impact on "secondary structures" in the political system (i.e. the party system, the power and scope of the central state, formal institutional arrangements, and ideological contestation) varies, the sectional axis has consistently structured political conflict over time.

Bensel's empirical analysis marks the following years of the twentieth century as particularly important in the history of sectional conflict: 1910, 1933, 1947, 1964, and 1973. Of these, the Great Depression and Oil Shock appear substantially more important in his narrative, moving beyond "inflection points" in the history of sectional conflict, where the intensity of sectional stress diverges from past trends, to crises, in our terms, where political alignments themselves reshuffle, thereby setting the stage for important political change.

Political Coalitions and Sectional Conflict: From Reconstruction to the New Deal Alliance

The creation of the New Deal coalition in 1932 marks a dramatic break with the partisan configuration of sectional coalitions that had prevailed since the end of Reconstruction. In this section, we discuss the political coalitions that took hold following Reconstruction, and how the

economic shock of the Great Depression altered relative prices in a way that disrupted this pattern and induced a move to a new political equilibrium.

Bensel's historical discussion suggests that in the fifty years between 1880 and 1930 (the period between the end of Reconstruction and the Great Depression), the sectional divide in American politics between the industrial core and the agrarian periphery mapped on to the partisan cleavage in the party system, such that Democrats represented the Southern and Western periphery while Republicans represented the Northern industrial core, both coalitions of smaller regional subgroups. Party coalitions, in other words, were rooted in regional support bases, and did not include interests on opposite sides of the sectional divide. This axis of political conflict, between a Northern industrial core represented by Republicans (who unified workers and industry through their support for high tariffs) and a agrarian periphery (of agricultural and raw materials producers) represented by Democrats, was the central feature of what scholars label the "Fourth Party System" in the United States (Sundquist 1973, 147-150).

Of course, this is not to say that that certain periods within this historical era did not see a temporary destabilization of the prevailing pattern; Woodrow Wilson, for instance, made temporary inroads into the industrial North in the election of 1912 (though, of course, this year was something of an anomaly given Roosevelt's presence in the race as the standard bearer for the Progressive Party). During certain periods, such as the Progressive era, Northern class divisions briefly "destabilized traditional partisan allegiances," allowing the Democratic Party to temporarily extend its political coalition to encompass certain Northern interests; however, the regional basis of party coalitions was always restored (Bensel 1984, 369). No *lasting* trans-regional coalition that spanned the sectional divide was forged during the period between Reconstruction and the Great Depression.

This naturally leads to the questions of why the regional basis for party competition remained in equilibrium, and why a long-lasting, more regionally heterogeneous political coalition failed to arise. In short, the set of economic circumstances and issues confronting actors in the pre-Depression era supported this equilibrium pattern of party coalitions. More specifically, the central political issue during the post-Reconstruction/pre-Depression era concerned the process of industrialization, and the "politics of industrialization was a sectional politics, with the separate regions perhaps further separated in basic political concerns than at any other point in American history" (Ladd, quoted in Bensel 372). Indeed, industrialization required a menu of anti-agricultural policies (such as high tariffs) that precluded an alliance between the Southern periphery and Northern workers, the trans-sectional alliance that eventually became the Democratic New Deal coalition (Burnham 1970; Sundquist 1973; Gourevitch 1986). In turn, each section, when in power, adopted policies favorable to its constituents, reinforcing patterns of investment in each region rather than leading to greater economic diversity in the same area of the country.

The Great Depression dramatically destabilized the economic environment, and thereby facilitated the transition to a new political equilibrium, one in which a trans-regional political coalition was indeed possible. The economic destruction wrought by the Great Depression unsettled the traditional Republican alliance between Northern industry and workers, providing Democratic political entrepreneurs with the window of opportunity to peel away urban workers from their traditional base in the Republican Party, and unite them with Southern agricultural interests in a coalition that would dominate American politics for the next several decades. Whereas in the post-Reconstruction era, the central cleavage in the party system simply reflected the sectional divide between core and periphery, the New Deal political alliance effectively

bridged this sectional divide to bring together "Southern plantation interests and Northern labor" within a single political coalition (Bensel 1984, 372; Sundquist 1973). Gourevitch's (1986) analysis, though not explicitly sectional in its analytic lens, makes a similar point about the nature of the quid-pro-quo that anchored the trans-sectional coalition between urban workers and Southern agricultural interests:

> Labor reversed its historic antipathy to higher food costs, accepting them in exchange for agrarian backing for the new industrial relations system, social security, and more active government pursuit of full employment. Agriculture, meanwhile, overcame its traditional hostility to labor, ethnics, and the city, paying that price for stabilization of the countryside (Gourevitch 1986, 152).

How, specifically, did the trans-regional New Deal coalition form? That is, given the Democratic Party's inability to permanently incorporate the Northern working class into its coalition prior to the 1930s, how did the Depression create the structural conditions that allowed them to finally do so? Addressing this question allows us to illustrate the importance of the relationship between relative price changes and political change in the empirical context of the Great Depression. More specifically, we might look to the consequences of the Great Depression for the relative price of labor (i.e. wages) and agricultural goods, which were of key concern for the industrial workers and agricultural elites at the heart of the New Deal coalition. With respect to labor, the failure of nominal wages to adjust to falling overall price levels led to a real wage rate above that consistent with a full-employment equilibrium. The relatively high price of labor in a deflationary environment, in other words, created the urban unemployment that activated previously dormant class conflict within the Republican coalition, and created a new urban constituency in favor of active government support for the labor market. In the South, the collapse in farm prices in the run-up and especially during the Great Depression led to a decline in agricultural incomes that generated demands for government assistance to the agricultural sector (note the collapse in agricultural prices/farm product in Table 2). In short, both labor and

agriculture shifted greater effort into the political arena to promote their interests.

Table 2 About Here

Suggestive evidence for the impact of relative price changes on the shape of the New Deal coalition is also found in price data for industries included in our relative price dispersion index, which casts light on finer grain inter-industry cleavages during the Great Depression (a topic that Bensel's analysis does not explicitly address). In particular, we would expect prices in relatively capital-intensive sectors to be less downwardly flexible than prices in relatively labor-intensive sectors as a result of product differentiation and variation in market structure; industrial organization dynamics, therefore, may have contributed to a relatively greater decline in prices for labor-intensive goods, thereby opening up a political cleavage between capital intensive and labor intensive sectors during the Great Depression, as documented in the qualitative literature (Ferguson 1984). To explore whether evidence for such a cleavage shows up in our price data, we draw on data from the 1927 census of manufactures and calculate the ratio of an industry's capital costs to its total input costs (i.e. capital + labor costs), a rough proxy for an industry's capital intensiveness.[12] Table 3 lists our sectors in ascending order, by capital intensity, along with the magnitude of the price decline suffered by each industry between 1929 and 1932 in percentage terms (i.e. the percentage decline in the price of an industry's products during the height of the Great Depression). We note that capital-intensive industries towards the bottom of our table fared relatively better (i.e. suffered lower relative price declines) during the Depression than relatively labor intensive industries (towards the top of our table), who were the relative

[12] Because our price data and our "capital intensity" data come from different sources, there is not an exact match between industries used in the price series and industries for which we calculated capital intensity measures. However, we were able to find roughly analogous industry classifications in both series. For instance, while our price index contains prices for "industrial commodities", the Census of Manufactures data allows us to calculate a capital intensity measure for "iron and steel", which should correspond with the former.

losers. Though there is insufficient data for a more formal analysis, it appears that less capital-intensive sectors fared relatively worse than more highly-capital intensive sectors during the height of the Depression. After dividing our sectors into high and low capital intensity groups (with industries above Gas and Heating classified as "low capital intensity" and everything below and including Gas and Heating classified as "high capital intensity"), the mean relative price decline between 1929 and 1933 for the "low capital intensity group" was 49.89%, while the decline for the high-capital intensity group was only 22.98%; this difference is highly statistically significant.[13] Evidence for a split between labor and capital intensive industries therefore tentatively appears in our relative price data.

Table 3 About Here

This empirical evidence for a split between capital intensive and labor intensive sectors resonates with theoretical and historical work carried out by Ferguson (1984), who argues that free-trading capital-intensive industries, whose interests did not directly conflict with the interests of workers, could afford to join the coalition of free-trading Southern agricultural interests and Northern labor. On the other hand, labor intensive Northern industries "could not afford higher social insurance, could not pay higher wages, [and] could not accept a union," which led to a conflict of interest between labor-intensive industries and workers (Ferguson 1984, 49). As Ferguson (1984, 50) argues, because they suffered lower price declines during the Great Depression, capital intensive industries were better able to "afford a coalition with labor" (and thereby pursue their interest in free trade) through the Democratic party, while labor intensive

[13] The P-value in the difference of means test is <0.0022. We also tried an alternative specification of groups, with the Gas and Heating industry classified as "low capital intensity" (i.e. with a different threshold between the two groups). Under this specification, the mean relative price decline for the low capital intensity group is 43.45%, while the mean decline for the high capital intensity group is 24.3 percent. The difference remains statistically significant at conventional levels, though the P-value is considerably larger (P value<0.044).

industries, with interests antagonistic to workers, remained within the Republican camp. Relative price dynamics in Northern industry, in short, may have opened up a political cleavage between capital and labor intensive industries in ways that ultimately affected the shape of the New Deal coalition; given the compatibility of workers' interests with those of capital-intensive industry, the New Deal coalition now pitted Northern workers, capital-intensive industry, and Southern agriculture (represented by Democrats) against Northern labor-intensive industry (represented by Republicans). Relative price movements during the Depression, in other words, not only peeled away Northern workers from their traditional home in the Republican Party, but capital-intensive industry interests as well.

These relative price dynamics laid the foundation for a lasting political realignment, though such a realignment was in no sense inevitable. As noted above, our framework is better at anticipating periods of change than predicting exactly which coalitions will form. Whether economic change translates into lasting political change, as it did during the Great Depression, is also affected by other factors, which we do not mean to downplay. For instance, even when broader structural conditions favor a departure from the current political equilibrium, effective political entrepreneurship seems essential for actually catalyzing change. In the context of the Depression, Democratic political entrepreneurs recognized the possibility for an enduring trans-sectional coalition between now-politically adrift workers, capital-intensive industries that would benefit from free trade, and the long-suffering agricultural South. The Democratic coalition forged during the New Deal era, on this account, was the result of both structure--the Depression's particularly devastating consequences for urban workers and Southern agriculture, as well as the preferences of Northern capital-intensive industry--and agency, the political vision of the Democratic political entrepreneurs who saw the possibility for an enduring alliance

between these previously disparate or antagonistic interests. Nonetheless, we argue that this entrepreneurship was made possible by the political opening created by the unusually high levels of volatility and large changes in relative prices that marked the Great Depression.

We do not expect changes in political coalitions to have immediate policy effects. The Reciprocal Trade Agreements Act (RTAA) passed in 1934, for instance, did not start producing significant tariff reductions by bilateral treaty until later in the decade.[14] Other programs, however, such as the Agricultural Adjustment Act, passed in May 1933, and the National Industrial Recovery Act, passed in June 1933 and creating the Public Works Administration, had more rapid impacts. Nonetheless, some of the sectors most central to the New Deal coalition, in turn, appear to have enjoyed something of a rebound early on (see Table 4b). Agriculture and raw materials, the hardest hit sectors between 1929 and 1933, enjoyed the largest increase in relative prices between 1934 and 1936. Wool, one of the more labor intensive sectors, also rebounded early, though textiles and clothing took longer to benefit. Although the evidence here is circumstantial, consistent with our analysis the sectors brought into the new coalition do appear to have benefited disproportionately from the new policies. This may have locked groups into policies dependent on the vitality of that coalition and, thus, solidified the New Deal coalition for the coming decades.

The Decline of the New Deal Coalition and the Crisis of the 1970s

One area where the core and peripheral wings of the New Deal coalition had clearly antagonistic preferences was in the domain of civil rights policy. However, Northern interests largely turned a blind eye to Southern segregation, viewing it as a necessary price for Southern cooperation in an effective bipolar coalition. Indeed, President Franklin Roosevelt ignored civil

[14] Some small countries signed agreements almost immediately, but agreements with France became effective only in 1937 and the United Kingdom only in 1939. For a list of agreements and dates, see Lake (1988, 207, fn. 253).

rights issues in favor of economic ones over which the different regional wings of the Party could achieve compromise. As a result, desegregation remained a mere aspiration of the Northern wing of the party, with no concrete legislative program behind it (Bensel 1984, 151).

As the Depression receded, however, the relative indifference of the Democratic Party's Northern wing to Southern segregation gave way to increasing hostility towards Jim Crow. With the enactment of major civil rights legislation starting in 1964, the New Deal coalition, on Bensel's account, effectively collapsed. However, while civil rights legislation ripped the regionally bipolar Democratic New Deal coalition asunder, it was the unsettled economic conditions of the 1970s – identified above as a crisis by our empirical indicators -- that effectively ushered in a new era of core-periphery conflict in a partisan framework dramatically different from that seen during the New Deal era. In essence, the economic difficulties of the 1970s accelerated an ongoing inversion in the sectional support bases of the two parties, with Republicans becoming the party of the Sunbelt periphery, and Democrats the party of the urban industrial core. Thus, the bipolar Democratic coalition of the New Deal gave way to a newly polarized system, one in which the parties effectively swapped their long-standing sectional support bases.

Though the irreconcilable split over civil rights initiated this reversal in the sectional bases of political parties, it was the economic crisis of the 1970s that increased volatility and altered the economy's relative price structure so as to accelerate and consolidate this historic reversal in partisan coalitions, and the associated trend towards renewed sectional polarization and conflict after the period of relative quiescence during the New Deal era (Bensel 1984, 403). Indeed, our theoretical account's emphasis on the role of relative price changes in activating political conflict between winners and losers, as well as shuffling political coalitions, is borne out

remarkably well in Bensel's empirical analysis of sectional conflict during the early 1970s. The oil embargo of 1973 led to a dramatic spike in energy costs (see Table 4), which accelerated the relative decline of the manufacturing core and led to high unemployment by driving up the price of inputs to industry. In contrast, the relative economic standing of the periphery, with a comparative advantage in energy production, improved with the rise in energy prices; in effect, the surge in energy costs improved the domestic terms of trade of the Southern and Western periphery relative to the urban core. In addition to buttressing the periphery's energy sector, it also altered the economic geography of the nation by triggering an outflow of capital and energy-intensive industries from the core economy towards the periphery, so as to be closer to the relatively cheaper domestic energy supply (Bensel 1984, 259). The devastation of the core economy accelerated Republican flight to the periphery; the relative economic ascendance of the periphery heightened the incentive to make a play for a region where antipathy towards the Democratic legacy on civil rights left traditionally democratic voters' partisan loyalties in flux. It also unified (at least temporarily) the Democrat's new core-centric coalition, since both Northern workers and labor-intensive industry (previously part of the Republican coalition) had a mutual interest in promoting public policies that would slow down or reverse industrial decline (Bensel 316, 274). To be sure, the urban core was already in relative decline as a result of various structural factors; however, the relative price shock triggered by the Oil Crisis accelerated this process considerably, and thereby increased the political salience and intensity of sectional conflict over the geographic distribution of the economic pie.

Table 4 About Here

More concretely, how did increasing partisan polarization across sectional lines, and the resulting sectional conflict, manifest in changing policy coalitions? One example can be found in

foreign economic policy, where the relative price effects of the economic crisis may have contributed to a historical shift in the structure of political coalitions over free trade. Historically, as is well known, Democrats were the party of trade liberalization, while Republicans supported trade protection. These preferences, of course, flowed naturally from the parties' respective sectional support bases, since Northern labor-intensive industry represented by the Republican party benefitted from protective tariffs, while the Southern agricultural and internationally competitive capital intensive industries represented by the Democratic party were hurt by trade protection. As the parties' sectional support bases began to shift, however, their positions on trade policy flipped accordingly. A casual glance at congressional roll-call voting over trade legislation suggests that the early to mid-1970s represents the "break point" when this historical inversion in trade policy preferences took place.

In Table 5, we reproduce the table from Hiscox (1999) on Congressional votes on major trade bills between 1870 and 1994. We present roll call results for house votes, indicating protectionist bills (following Hiscox's coding) with a *. Following Hiscox, we can classify the history of American trade policy into three eras, based on partisan patterns of support for free trade legislation. It is clear that until 1930, when the Smoot Hawley tariff was passed, the traditional cleavage over trade policy is readily apparent, with Republicans supporting protection, and Democrats supporting free trade. Following the passage of the RTAA, we see evidence of convergence among the two parties towards a preference for freer trade (especially following World War II); on Hiscox's account, this is because World War II reoriented the interests of the Republican constituency in favor of an open trade regime. We see this convergence in party preferences, for instance, in votes over the RTAA during the 1950s. However, this interregional, inter-partisan "détente" over trade policy broke down starting in about 1970, as Democrats began

to take up the mantle of protectionism while Republicans began their path towards free trade. This shift, of course, coincides with the shift in the parties' sectional support coalitions that begins, on Bensel's account, in 1965. Hiscox's discussion echoes Bensel's, and is worth quoting:

> The [Republican] party…began to draw electoral support increasingly from the South and West where export industries-including agricultural producers who deserted the Democrats in these years, along with newer, high-tech manufacturing and service industries-accounted for larger shares of the economy. Democrats, once a minor force in the great urban and commercial centers of the East, began to draw heavy support from the large northeastern cities and the cities of the Midwest. Even as many Republicans continued to shift away from protectionism in the postwar era, many Democrats shifted in the other direction (687).

Trubowitz (1998, 200) also notes that "by the 1980s, the Republicans, once the party of protection, had become the party of free trade." Interestingly, Table 5 suggests that 1974 was the point of transition from the post-war alignment of preferences over trade policy, to the new era in which Democrats became the party of protection and Republicans the party of free trade. Certainly, there seems to be a decisive break in the Republican camp between 1970, when the Republican coalition split its vote over the protectionist Mills Bill, and 1974, when it voted decisively in favor of the liberal Trade Reform Act. Though more work is, of course, needed to draw an explicit link between the crisis and this decisive shift towards a preference for free trade within the Republican party, our analysis suggests the possibility that the relative price shocks of the 1970s, by reshaping the country's economic geography and accelerating the Republican flight to the periphery, may have driven this shift in the structure of trade policy preferences. Once again, we note a suggestive affinity between the empirical historical record on important political change, and the theoretical connection that we have drawn between the shift in relative prices induced by crises, changes in political coalitions, and ultimately, the transformation of preferences, policy and institutions.

Table 5 About Here

The changes in America's economic and political geography over the course of the 1970s were the product of many factors, ranging from improvements in transportation technology to the widespread adoption of air-conditioning in the South. Coalitional change was also the product of political entrepreneurs taking advantage of underlying changes in the economy, especially President Richard Nixon's "Southern strategy" employed during the 1972 campaign. Nevertheless, in the absence of the dramatic spike in the price of energy and the corresponding increase in volatility, these changes might not have been as rapid or as dramatic as they in fact were.

The after-effects of the tumultuous 1970s played out well into the 1980s. The much discussed "Reagan coalition" and the definitive shift of the South into the Republican column reflects the new sectoral alignment that emerged from the instability of the 1970s. This coalition seems to have prevailed to the present day; indeed, a causal glance at an electoral map from the 1990s and 2000's appears to confirm that Democrats remain the party of the industrial (and now, increasingly, post-industrial) core economies located in the Northeast, Midwest, and West Coast, while Republicans have consolidated their hold over the Sunbelt. This realignment was also consolidated by relative price movements by economic sector. Where the New Deal coalition bridged regions, the Republican coalition is more clearly composed of economic "winners." Those sectors that enjoyed significant increases in relative returns during the crisis continued to benefit from higher relative prices throughout the 1980s, including fuel and energy products and industrial commodities, disproportionately located in the economic periphery. Only agriculture, hard hit during the crisis, is a central piece of the coalition that continues to fall behind in terms of relative prices (compare Table 6a and b). This coalition of winners, in turn, undergirded the

Reagan revolution and its subsequent politics, including the gradual repeal of Keynesian social welfare policies, the progressive deregulation of economic sectors – especially finance, and the adoption of more market-oriented policies generally (Hall 2013).

The Great Recession

After the Crisis of 1973-1974, the next full-blown crisis, according to our volatility and relative price and measures is the Great Recession of 2008-2009. The neoliberal model adopted after the crisis of the 1970s, along with exogenous technological change, gradually reshaped the American economy, once again slowly shifting its tectonic plates. Two changes were critical. First the "Fordist model" of production that relied on relatively unskilled labor in relatively productive manufacturing was fatally undermined as the economy shifted toward more human capital intensive production, often in global supply chains. Second, and following from the first, services expanded greatly both into relatively low paid jobs in retail, restaurants, and other mobile employment, often picking up labor that might have gone into manufacturing under the previous model, and highly paid jobs in health care and finance (Hall 2013, 134). Of these, the growth of finance is perhaps the most important. Begun under the deregulation started in the Reagan administration, and reinforced by international capital market liberalization in 1985 – which allowed the international financing of ever larger current account deficits -- by the 1990s support for finance had developed a bipartisan character, reflected in the further deregulation of banking in 1996 under President Bill Clinton. Accounting for 4.1 percent of GDP in the United States in 1973 (by value added), finance (and insurance) nearly doubled to 7.3 percent of GDP in 2008.[15] Deregulation and the rapid growth of finance contributed to increased volatility, noted

[15] If we include Finance, insurance, real estate (rental and leasing), which might be more representative of the sector as a whole, it grew from 14.7 to 20.4 percent of GDP. See U.S. Department of Commerce, Bureau of Economic Analysis, NAICS Historical Data, 1947-97 GDPbyIND_VA_NAICS and NAICS Data GDPbyInd_VA_NAICS,

above in 1986-1987 and 2000, perhaps precursors to the Great Recession. In 2008, however, extreme volatility and large shifts in relative prices combined to create by our indicators the second largest crisis since 1900.

We are not yet in a position, of course, to ascertain the broader historical significance of this possible political crisis. At first glance, and despite its severity, it does not appear that the crisis of 2008-2009 has led to the epochal shifts in political coalitions that marked the Great Depression and the Oil Crisis. There are at least three reasons why the Great Recession may lag in political change. First, "finance" is not a single sector, but several sectors that have experienced the crisis in quite different ways. Continued turmoil in the real-estate finance industry contrasts sharply with relative prosperity on Wall Street (as evidenced by the price trends in the investment banking and securities industry). Second, since the Great Depression, the international economy has put in place various "shock absorbers," like the International Monetary Fund and World Trade Organization, to prevent the beggar-thy-neighbor policies that did so much to exacerbate the crisis in the 1930s (Kahler 2013). Finally, while industries have been affected differently in the crisis, as reflected in Table 6, there appears to be less structure to these changes than in past crises, other than the heavy industries in which blue collar and semi-skilled workers predominate have been relatively hard hit, clustering near the middle of our ranking of winners and losers. Perhaps for these reasons, as Peter Hall (2013, 148) writes "new electoral coalitions offering alternative policies are not yet in sight," and that despite mass discontent "the era of finance capitalism is far from over."

Table 6 About Here

Nevertheless, U.S. national politics are clearly in turmoil. The Tea Party movement has

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1998-2012, available at: http://www.bea.gov/industry/iedguide.htm#gpo (accessed August 15, 2014).

pulled the Republican Party even further to the Right. Although the Occupy Wall Street movement appears to have been short lived, it focused attention on issues of increasing economic inequality and decreasing social mobility in the United States that continue to animate debate. Both movements, though arising at opposite ends of the political spectrum, can be regarded as forms of populism in which those left out of the prosperity of the pre-crisis era mobilize to pursue change through the political arena. Our framework suggests that the political grievances now on display in American politics may be traced to the underlying price trends suggested above, rather than (as some critics imply) an ideologically motivated backlash against capitalism itself. In addition, it suggests lines for future research: for example, how has the relative decline of "low" finance (i.e. commercial banking") with respect to "high" finance (investment banking and securities dealing) shaped the politics of financial regulation?

We can speculate on how the present crisis might induce a shift in future coalitions. One clear possibility is that the politics of fiscal adjustment and consolidation to restrain the growth of spending on "entitlements" will put new pressures on political systems already in disarray, potentially generating new cleavages and coalitions. Such adjustment will surely require an inter-generational, interregional (to the extent that different regions in the country subsidize others through national welfare schemes), and inter-class bargain over the burden of adjustment, which could lead to shifts in the pattern of political coalitions as different sides seek out allies across the political spectrum to push forward favored policies. More broadly, an important implication of the present crisis is that the United States will have to export more to bring its external accounts into balance. This reorientation of the economy may have significant domestic political implications-for instance, it will benefit the high-skilled workers in the industries in which America has comparative advantage, at the expense of lower skilled ones. Conflict

between the winners and the losers of the adjustment process may therefore shape the future contours of American foreign economic policy (Chinn and Frieden 2011, 174). Another possibility is that the drying up of cheap credit will increase the political salience of middle-income stagnation and increasing income and wealth inequality. Overall, the remarkably large movements in volatility and relative prices suggests that major political changes will follow, even if they are still nascent at this time. Yet, as above, exactly how the rapidly changing interests of the various sectors will coalesce into a new political coalition will probably remain unclear for some time to come.

Conclusion

Crises are clearly worth studying. They provide unique opportunities to observe domestic and international political behavior in times of momentous battles and crucial decisions. Yet, it is not sufficient to use crisis as an error term to explain what is otherwise puzzling. For the analysis of crises to help resolve ongoing debates in Political Science, analysts must generate testable hypotheses about how specific mechanisms during crisis periods are expected to affect political behavior and outcomes.

Our purpose in this paper has been to set forth a systematic framework for analyzing politics in times of crisis. We began with a simple theory of optimizing individual and group behavior within the constraints of existing institutional and political patterns of cooperation. We then distinguished two features of crises with predictable effects on political behavior. Increased political risk, measured by broad volatility in asset values, calls existing coalitions into doubt as economic agents change their own political strategies and, possibly more important, anticipate that other agents will change theirs. Changes in relative prices lead actors to reallocate resources both from one economic activity to another and from the marketplace to the political arena.

Together, these two features give rise to political realignments. Empirical evidence from the United States over the last century provides suggestive evidence for this theory of crisis-induced political change.

The study of political economies in crisis is important. It can only be fruitful for social scientists, however, if it is carried out in a methodical manner. This requires the construction of careful analyses of the system in "normal times," a precise idea of how the crisis is expected to affect the system and the actors in it, the development of ex ante measures of crises that are independent of the political changes that ensue, and a test of causal hypotheses in specific cases. This essay is an attempt to encourage such systematic investigation. In the process, it yields—depending on one's perspective--a foreboding or perhaps encouraging vision of the future.

Appendix

A.1. GARCH Models

ARCH models were developed as a means of modeling conditional heteroskedasticity in error terms (Engle 1982). These models are based on the assumption that errors are not independent and that variance is an autoregressive process resulting in conditionally heteroskedastic errors linked to the squares of earlier innovations. Essentially, ARCH models assume that conditional variance can be represented by the autoregressive process:

$$\hat{\varepsilon}_t^{\,2} = \alpha_0 + \alpha_1 \hat{\varepsilon}^2{}_{t-1} + \alpha_2 \hat{\varepsilon}^2{}_{t-2} + \cdots + \alpha_q \hat{\varepsilon}^2{}_{t-q} + v_t$$

where v_t is a white noise process. Hence, ARCH models are able to capture periods of tranquility and volatility in data series and seem well-suited to modeling uncertainty in stock returns.

We are most interested in GARCH models (generalized autoregressive conditional heteroskedasticity). GARCH builds upon conventional ARCH models by allowing the conditional variance to be an ARMA process. In a simple ARCH process,

$$\varepsilon_t = v_t \sqrt{\alpha_o + \alpha_1 \varepsilon^2{}_{t-1}}$$

where v_t is a white noise process. In a GARCH process,

$$\varepsilon_t = v_t \sqrt{h}$$

where $\sigma^2{}_v = 1$,

$$h_t = \alpha_0 + \textstyle\sum_{i=1}^{q} \alpha_i \, \varepsilon^2{}_{t-i} + \sum_{i=1}^{p} \beta_i \, h_{t-i},$$

and the conditional variance of ε_t is the ARMA process given by the expression for h_t. In other words, a GARCH(p,q) model allows for both autoregressive and moving-average components in the heteroskedastic variance. GARCH(p,q) models are generally more

parsimonious than high-order ARCH models and entail fewer coefficient restrictions (Enders 2010).

Prior to specifying the models, we created a sequential date variable for the S&P index to take into account weekends and holidays. Estimating a model without taking into account non-business days would bias our results.[16]

We perform several tests to determine whether conditional heteroskedasticity is a plausible assumption for the S&P index. We ran the Lagrange Multiplier Test, a test for the lag length of ARCH errors. This test obtains the squared errors of a regression and regresses them on *q* lagged values. The null hypothesis is that the coefficients of the lagged values will be 0 in the absence of ARCH components. We ran Lagrange Multiplier tests for 5 lags for each index. We next ran Portmanteau Tests on each index and calculated the Ljung-Box Q-Statistics. This tests for autocorrelation in the residuals of a model. We calculated the Ljung-Box Q-Statistic for up to 10 lags for each index. Overall, the results provide strong indication that ARCH and GARCH effects are present for S&P returns.

Next, we ran GARCH models for the S&P 500 index. We started with simple GARCH, and then ran models using an AR(1) term -- allowing for the possibility that the expected value of the index may be a function of the mean in the period *t-1*. Next, we added a simple asymmetric term to each GARCH model to control for leverage effects (i.e., the possibility that downturns may increase volatility more than upswings). Finally, we specified a model that both follows an AR(1) process and contains leverage effects. The ARCH, GARCH, and asymmetric terms were overwhelmingly significant in each model, as evidenced by the p-values of individual coefficients as well as Wald tests for joint significance.

[16] Global Financial Data. 2011. *Equity Series* [Data File] Retrieved from https://www.globalfinancialdata.com/platform/search.aspx?db=gfdatabase

In order to select the best fitting model, we examined Schwarz's Bayesian Information Criterion (BIC) for the models. This criterion selects the parameters of an ARMA model so as to maximize the log likelihood function including a penalty for each parameter estimated. Generally, the more negative the value, the stronger the model. The BIC suggested that the data is best represented by an asymmetric GARCH model without an autoregressive AR(1) term.

A.2. Relative Price Dispersion

Given breaks in producer price time series (which reflect changes in the broader makeup of the economy) we examine a different set of sectors in the pre- and post-1950 periods.Pre-1950s producer price indices are taken from online databases at the National Bureau of Economic Research (NBER);[17]post-1950s indices are taken from the Bureau of Labor Statistics' online Producer Price Index (PPI) database.[18]Formal tests for seasonality built into the Census X-13 ARIMA-SEATS package suggested that the relative price series do not, for the most part, possess significant seasonality. In order to eliminate noise and estimate trend-cycle components, we smooth the relative price data using a quarterly centered moving average.

Relative price dispersion is measured as:

$$RPD_t = \frac{1}{n} \sum_{i=0}^{n} (\pi_{it} - \pi_t)^2$$

where π_{it} is the monthly change in the *i*th sector's Producer Price Index (PPI) and π_t is the average monthly change for all price indices in the dataset.

The sectors factored into our measure of relative price dispersion in the 1900-1950 time period are: fuel and lighting, metals and metal products, farm products, building materials,

[17] National Bureau of Economic Research. *NBER Macrohistory: Prices*[Data File]. Retrieved from http://www.nber.org/databases/macrohistory/contents/chapter04.html

[18] Bureau of Labor Statistics. (2011). *Producer Price Indexes* [Data File]. Retrieved from http://www.bls.gov/ppi/. Federal Reserve Bank of St. Louis. 2011. *FRED Economic Data* [Data File]. Retrieved from http://research.stlouisfed.org/fred2/categories/31

chemicals and drugs, textiles, and hides and leather products. Sectors factored into our measure of relative price dispersion from 1950-2011 are: chemicals, farm products, consumer goods, metals and metal products, industrial commodities, capital equipment, iron and steel, fuels and energy products, and crude materials.

Table 1. Economic Crises

	Stock Market Volatility		
Relative Price Dispersion		*Normal*	*Greater than one s.d. above the mean*
	Normal	***Normal Times*** *All other years.*	***Potential Crises*** 1929-1932, 1934, 1937-1940, 1975, 1987, 2009
	Greater than one s.d. above the mean	***Potential Crises*** 1902-1903, 1915-1917, 1919-1921, 1973, 1990-1991, 2005	***Hard Times*** 1933, 1974, 2000-2001, 2008

Table 2: Relative Winners and Losers in the Great Depression

a. Crisis: 1929-1933 (Industries listed in descending order, from relative winners to losers; Industries listed in bold are included in the calculation of the overall dispersion index)

Industry	Slope of Crisis Trendline
Passenger Automobiles	-0.30***
Fuel and Lighting	-0.38***
Metals and Metal Products	-0.43***
Building Materials	-0.46***
Chemicals and Drugs	-0.51***
Wool	-0.56***
Hides and Leather Products	-0.58***
Industrial Commodities	-0.64***
Print/Cloth Mills	-0.65***
Textiles	-0.67***
Raw Materials	-0.91***
Farm Products	-1.13***

b. Early New Deal: 1934-1936

Industry	Slope of Post-Crisis Trendline
Farm Products	1.12***
Raw Materials	0.74***
Wool	0.64**
Hides and Leather Products	0.38***
Chemicals	0.19***
Fuel and Lighting	0.17***
Industrial Commodities	0.09**
Metals	0.01
Building Materials	0.02
Textiles	-0.07
Passenger Automobiles	-0.20
Print and Cloth Mills	-0.30*

*=<.05; **=P<.01; ***=P<.001; all others are not significant at conventional levels

Table 3. Pre-Crisis Capital Intensity and Relative Price Changes, 1929-1933

Industry	**Capital Intensity (Value of Capital Costs/Value of Total Input Costs, 1927)**	**Magnitude of Relative Price Decline (Percentage Change in Price, 1929-1933)**
Clothing (Men's, Youths', and Boys'; Summary for all Factories)	0.7317526	59.6491228
Woolen Goods	0.7325668	57.1052632
Textiles	0.7366387	42.7027027
Iron and Steel	0.7370922	40.1063201
Gas, Manufactured, Illuminating, and Heating	0.7559935	17.6959620
Manufactures of Nonferrous Metals and Alloys	0.7790854	20.6793207
Chemicals	0.7909736	24.3723849
Motor Vehicles (average number employed during year)	0.8050204	13.5527590
Leather: Tanned, Curried and Finished	0.8302276	38.6243386

Table 4. Relative Winners and Losers in the Crisis of the 1970s

a. Crisis: 1973-1975 (Industries listed in descending order, from relative winners to losers; Industries listed in bold included in the calculation of the overall dispersion index)

Industry	**Slope of Crisis Trendline**
Fuels and Energy Products	3.69***
Chemicals	2.75***
Iron and Steel	2.00***
Metals and Metal Products	1.72***
Industrial Commodities	1.55***
Capital Equipment	1.33***
Consumer Goods	1.18***
Transportation Equipment	0.89***
Crude materials	0.77***
Farm Products	0.40**
Electronic Accessories	0.23***

b. Post-Crisis: 1976-1980

Industry	**Slope of Post-Crisis Trendline**
Fuels and Energy Products	2.34***
Crude materials	1.10***
Industrial Commodities	1.04***
Metals and Metal Products	1.01***
Consumer Goods	0.96***
Iron and Steel	0.92***
Capital Equipment	0.81***
Chemicals	0.79***
Transportation Equipment	0.76***
Electronic Accessories	0.87***
Farm Products	0.70***

***=P<.001

Table 5. Vote Margins (Yeas-Nays), by Party, on Trade Legislation, 1875-1994

Year	Legislation (* Denotes Protectionist)	Democrats	Republicans
1875	Tariff Act*	-74	86
1884	Morrison Bill*	-110	109
1888	Mills Bill	152	141
1890	McKinley Tariff*	-138	162
1894	Gorman Tariff	179	126
1897	Dingley Tariff*	-110	199
1909	Payne-Aldrich Tariff*	-156	212
1913	Underwood Tariff	279	-124
1922	Fordney McCumber Tariff*	-81	201
1930	Smoot Hawley Tariff*	-131	221
1934	RTAA	267	-107
1937	RTAA Extension, 3 Years	275	-84
1940	RTAA Extension, 3 Years	192	-141
1943	RTAA Extension, 2 Years	184	93
1945	RTAA Extension, 3 Years	193	-107
1948	RTAA Extension, 1 Year	-126	213
1949	RTAA Extension, 2 Years	228	21
1953	RTAA Extension, 1 year	173	??
1954	RTAA Extension, 1 Year	141	86
1955	RTAA Extension, 3 Years	52	33
1958	RTAA Extension, 4 Years	145	74
1962	Trade Expansion Act (5 Year Authority)	179	-6
1970	**Mills Bill***	**53**	**-3**
1974	**Trade Reform Act (5 Year Authority)**	**-9**	**144**
1979	Trade Agreements Act	242	146
1984	Trade Remedies Reform Act*	169	-6
1986	Omnibus Trade Bill*	241	-88
1988	Omnibus trade and competitiveness act*	239	92
1991	Disapprove Fast Track Extension*	81	-122
1993	NAFTA	46	89
1993	GATT Fast-Track Extension	43	127
1994	GATT Uruguay Agreement	78	65

* Denotes Protectionist Legislation. Excludes RTAA Extension in 1951, passed by voice vote, and RTAA Extension in 1979, not coded by Hiscox.

Source: Hiscox

Table 6. The Great Recession, 2007-2010

(Industries listed in descending order, from relative winners to losers; Industries listed in bold included in the calculation of the overall dispersion index)

Industry	**Slope of Crisis Trendline**
Real-Estate Loan Products (Besides Home Equity)	1.14***
Chemicals	0.44***
Residential Construction	0.41***
Hospitals/Healthcare	0.39***
Investment Banking and Securities Dealing	0.38***
Farm Products	0.34**
Consumer Goods	0.28***
Transportation Equipment	0.22***
Metals and Metal Products	0.21**
Industrial Commodities	0.19***
Capital Equipment	0.14***
Iron and Steel	0.25
Fuels and Energy Products	0.14
Crude Materials	0.06
Commercial Banking Products	-0.18***
Electronic Accessories	-0.23***
Home Equity Loans	-1.03**

=P<.0, 1*=P<.001

Figure 1.
Monthly Volatility

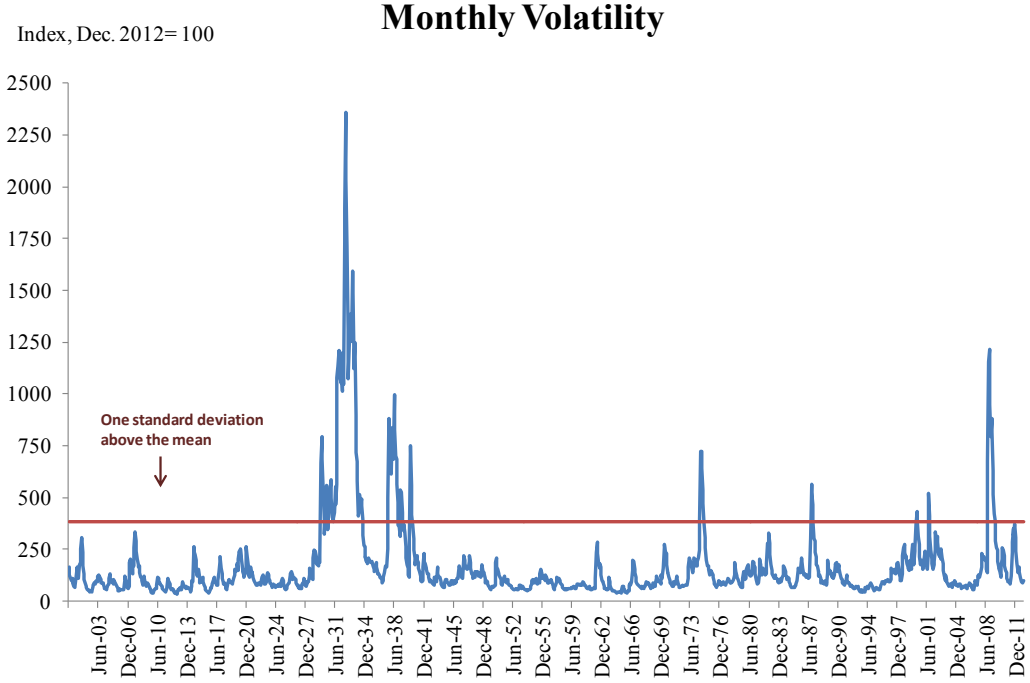


Figure 2a.
Relative Price Dispersion, before 1950

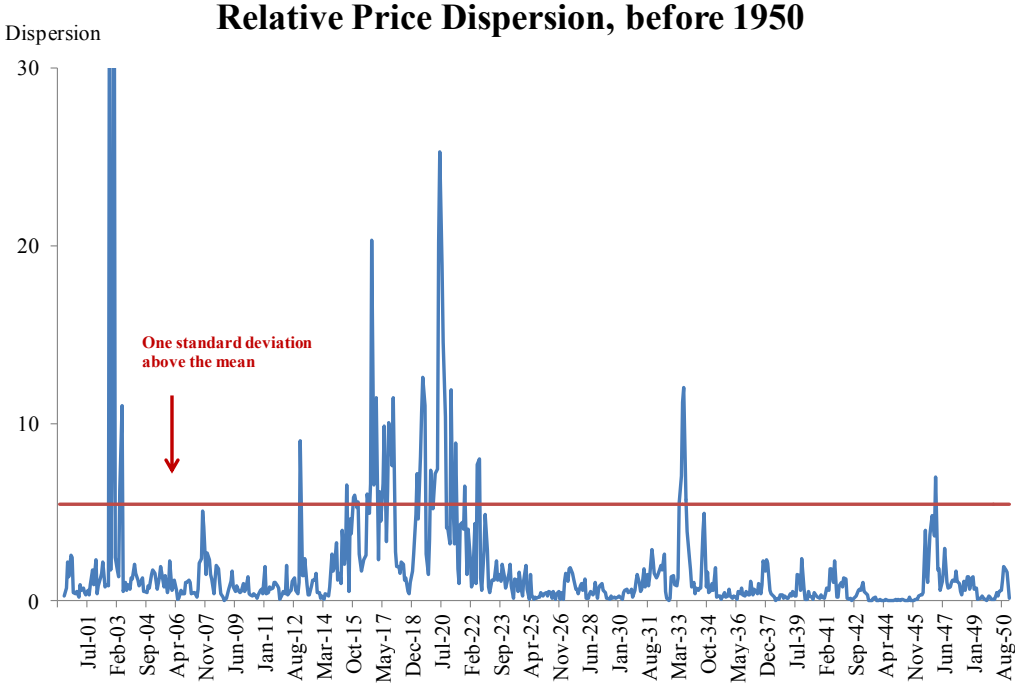


Figure 2b.
Relative Price Dispersion, post-1950

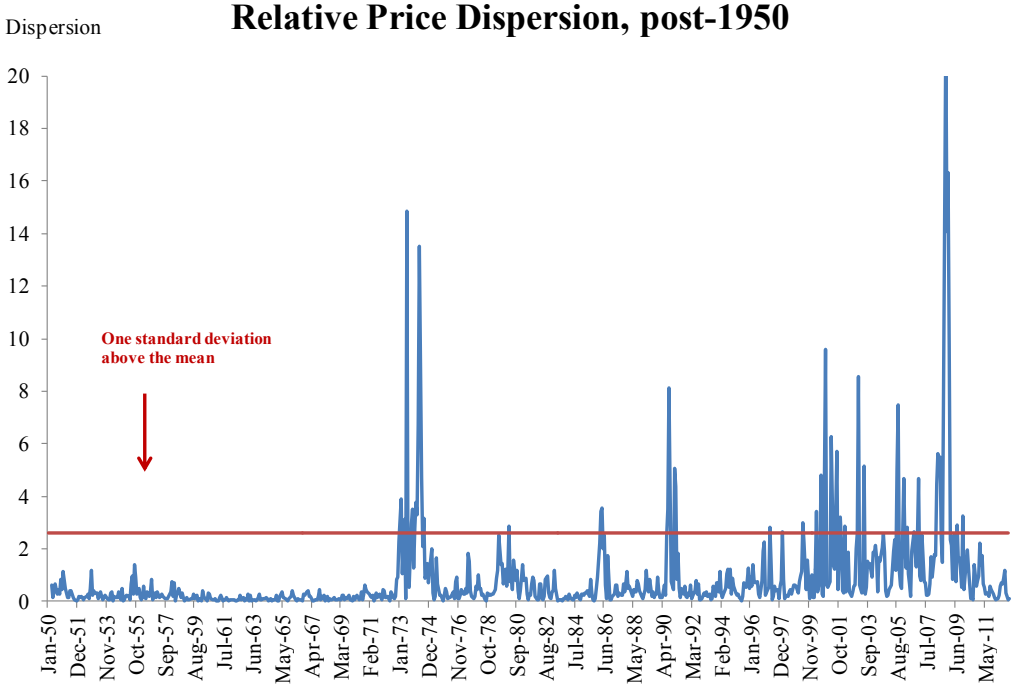


Figure 3a and b: Combined Stock Market Volatility and Relative Price Dispersion, 1900-1950 and 1950-2012

Figure 3a.
Relative Price Dispersion, before 1950

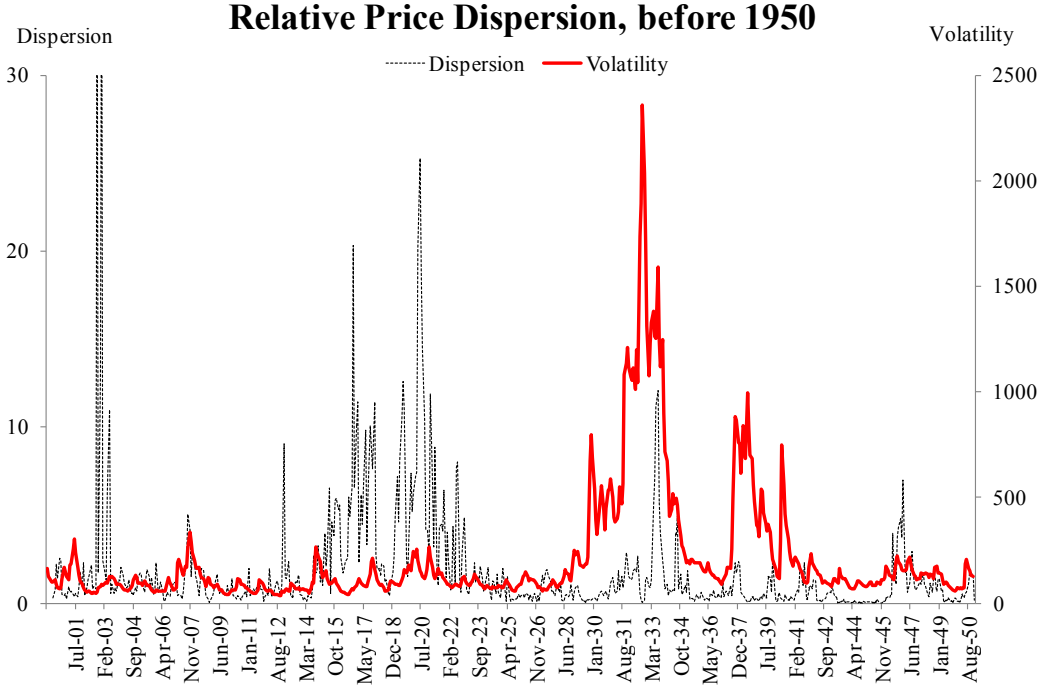
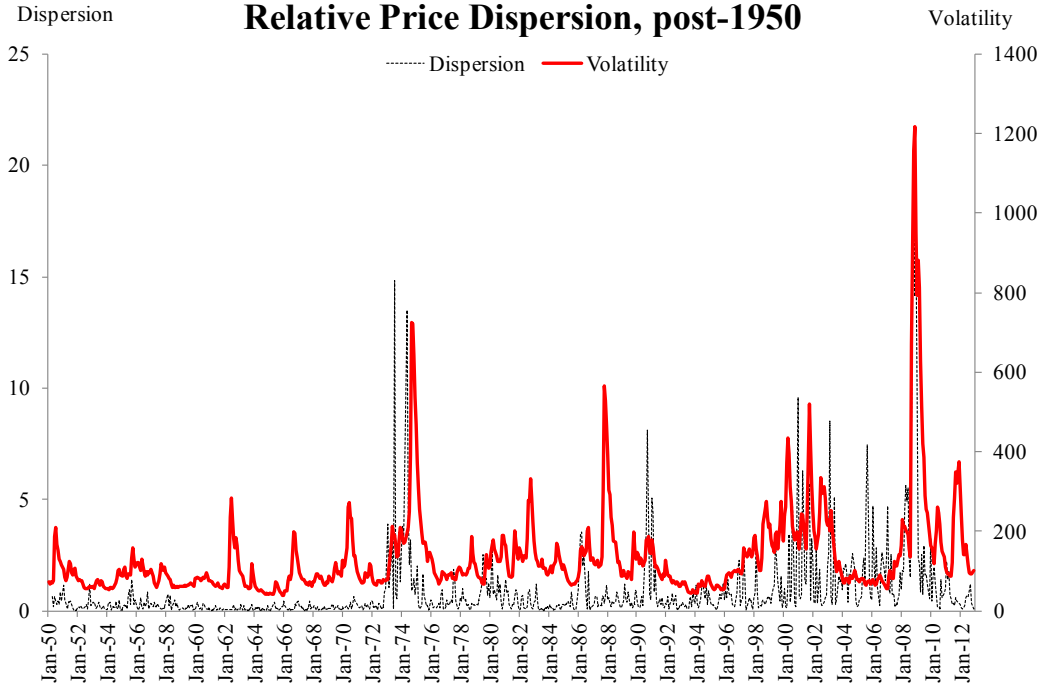


Figure 3b.
Relative Price Dispersion, post-1950



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