Punctuated Equilibrium and the Information Disadvantage of Authoritarianism: Evidence from the People's Republic of China

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Abstract:	According to the punctuated equilibrium thesis, government attention allocation alternates between long periods of stasis and dramatic spurts of disequilibrium because democratic institutions enable minority groups to obstruct change. This paper presents a critical discrepancy in contemporary China, where punctuated instability is significantly more intense despite a lack of democratic institutions to empower minority obstructionism. Our empirical analysis further reveals that punctuated intensity goes even higher for Chinese regions facing fewer signs of social discontent. We attribute the intensification of punctuated dynamics to an information disadvantage arising from the lack of diverse, independent sources of information under authoritarianism. Our finding contributes to punctuated equilibrium theory by underlining the function of opposition groups not only as obstructionists but also as challengers to policy priorities. By marginalizing these challengers, authoritarian institutions confine attention to known problems, leading to serious delays in the discovery of and adjustment to emerging issues.

Introduction

The punctuated equilibrium thesis contends that government attention allocation is universally "leptokurtic" in that long periods of stability are punctuated by abrupt and radical shifts (Jones, 2001). Originally developed to account for the instability in the US political system, the theory attributes punctuated shifts in attention allocation to minority obstruction (Jones & Baumgartner, 1997; Jones, Sulkin, & Larsen, 2003). More recently, comparative studies lend support to the claim that more decentralized political systems, such as the presidential system of the United States, are more prone to punctuated change than relatively centralized democracies, such as the Westminster system of the United Kingdom (Baumgartner et al., 2009; Jones & Baumgartner, 1993; Jones et al., 2009). These findings establish that institutionally enabled minority resistance to change—or what is commonly referred to as "institutional friction" in the literature—is the primary reason why punctuated instability increases with decentralization.

With case selection confined to liberal democracies, the current literature offers limited insights on information processing in governments that deviate from the US model in fundamental ways. Whereas liberal democracies differ in the extent of power separation, legislative pluralism, and regional decentralization (Lijphart, 1999), authoritarian regimes are structured for top-down decision-making and hierarchical control at the expense of competition and participation (Olson, 2000). Elections, citizen participation, and other institutions that purposely maintain high transacting costs or institutional friction are replaced with mechanisms that promote ease of unilateral decision-making. Under centralized power, skeptics of current policy become marginalized and elite conflicts are actively contained (Boix & Svolik, 2013). The usual sources of institutional friction are necessarily absent in the authoritarian state.

The puzzle that our paper discusses pertains to new evidence showing the intensification of punctuated equilibrium under authoritarian institutions (Lam and Chan, in

press). To address this puzzle, we extend the current theory to show that the intensity of
punctuated equilibrium in authoritarian regime is determined by policymakers' degree of
exposure to information rather than institutional friction as in the case of liberal democracies.
Drawing on major theories in comparative politics and the China literature (Landry, 2008;
Liberthal, 1995; Lieberthal & Lampton, 1992; Magaloni & Kricheli, 2010; Shirk, 1993;
Wintrobe, 1998), we explore how authoritarianism may entail critical differences in the
institutional makeup with respect to the access to and quality of policy information. Empirically,
we show how the dynamic of attention allocation in the People's Republic of China differs from
liberal democracies and varies across regions due to information exposure. This analysis offers
empirical evidence from a major contemporary single-party state whose institutions are
antithetical to those that support democratic and participative governance.

Punctuated equilibrium in liberal democracies: cognitive and institutional foundations

The central thesis of punctuated equilibrium is that government attention allocation is non-
incremental; long periods of stability are interspersed by short-lived but dramatic episodes of
disruptive change to policy agendas. Skeptical of the theory of incrementalism embodied by the
early rational-choice models of the budgetary and policy process (Davis, Dempster, &
Wildavsky 1966; Lindblom, 1959), Jones, Baumgartner, and others proposed a behavioral theory
of government information processing that attributes non-incremental changes in budgetary
processes (Breunig & Jones, 2011; Breunig & Koski, 2006; Jones et al., 2009) and in political
attention more generally (Baumgartner & Jones, 1993; Jones, Sulkin, & Larsen, 2003; Jones &
Baumgartner, 2005; May, Workman, & Jones, 2008) to two factors: bounded rationality and
institutional friction.

Bounded rationality entails major "inefficiencies" for information processing. Bounded rationalists economize cognitive resources through pattern recognition; they associate problems with choices they have made previously and repeat those decisions without critical assessment (Simon, 1997). This behavioral pattern means that information indicating changes in problem nature is rationally ignored and responses are not updated in spite of corresponding changes in the task environment (Jones, 2001). In addition, bounded rationalists can only process problems serially (Jones, 2003). This increases the short-term immobility of attention allocation without emotional or informational arousal to motivate cognitive adjustment (Simon, 1997). Due to these cognitive inefficiencies, the bounded rationalist tends to overreact and undertake radical changes when the problems finally come to their attention. These inefficiencies arising from bounded rationality can aggregate into punctuated equilibrium as attention alternates between stasis and episodic change (Jones, 2003).

Institutional friction can be a prominent source of punctuated equilibrium, since in decentralized systems such as the United States policy change requires extensive mobilization across policy "subsystems" (Jones & Baumgartner, 2005). Protected by the rules restricting participation and veto player bargaining, policy minority can obstruct initiatives to change most of the time (Cobb, Ross, & Ross, 1976; Kingdon 1984; Tsebelis, 2002), barring the rare occurrences of focusing events (Birkland, 1997). Institutions introduce friction against more efficient, incremental patterns of attention allocation. Without taking into account the issue of context-specificity in operationalizing institutional friction, it is generally understood that the tendency of attention allocation to punctuate is the dynamical manifestation of minority obstruction realized in one way or another (Eissler, Russell, & Jones, 2014). Focusing on liberal democracies, Jones, Sulkin, and Larsen (2003, 167) argue that democracies may actually be

purposively tuned toward "regular disruptions", entailing processes that are punctuated by occasional "dislocations" but free from the "catastrophe".

Exactly what aspect of the institutional makeup matters varies with context and it is often difficult to characterize and measure institutions without some extent of contextualization (Breunig & Koski, 2003; Jones et al., 2009). The relative accessibility of the democratic policy process allows policy entrepreneurs to expand conflict whenever favorable conditions arise (Baumgartner & Jones, 1993; Schattschneider 1975). Therefore, democratic institutions lead to two counterbalancing outcomes for attention allocation: they raise transaction costs and make it difficult to organize incremental adjustments, but they also sustain regular perturbations to the process. In other words, attention allocation exhibits punctuated instability in the context of democratic politics because minority groups can block most challenges to the status quo in the short run, but they also make attacks on current policy more frequent, more relentless, and impossible to completely contain (Kingdon, 1984).

Punctuated equilibrium under authoritarianism

Whether attention allocation in authoritarian regimes exhibits similar patterns of punctuated change depends on how government attention is allocated under authoritarian institutional contexts relative to liberal democratic politics. A key institutional condition that differentiates liberal democracies from authoritarian regimes is political representation and policy access. Authoritarian politics is defined by the absence of the very institutions that give shape to democratic politics, such as fair and regular elections, citizen participation, policy advocacy, and the right to openly express grievances and dissent (Olson, 2000). In authoritarian systems, the press is closely monitored, elections (if any) are tightly controlled, and channels for grievance representation are few and restricted (Truex, 2014; Tsai, 2007). Most importantly, policy

decisions are made unilaterally by the political leadership and implemented by coercion if necessary. There is relatively little institutional friction in authoritarian regimes, which would suggest that punctuated instability would correspondingly abate in intensity.

As a result, it is our contention that the foundations of punctuated equilibrium in the authoritarian system differ substantially from the way it is depicted in the liberal democratic context. Two sources of punctuated instability under authoritarian institutions can be identified. First, it traces back to the perverse incentives set in place by the infrastructure for top-down control. Even though institutional friction is low and authoritarians can and do initiate major changes unilaterally, centralization essentially removes a very common source of policy instability (Tsebelis 2002). Whereas policy actors in the democratic system promote their agendas by actively and openly challenging current policy, covert collaboration against rather than open violation of the authoritarian's policy would minimize the risk of detection and serve administrators' interest best (Olson, 2000). Second, authoritarians are often purposely led to believe that current policy works well by bureaucrats who have considerable information advantage over their political principals (Egorov & Sonin, 2011). Emerging from these motives is extreme stability in the information process. Authoritarian centralization creates a veritable information disadvantage because it motivates lower level administrators to manipulate information as it travels up the bureaucratic hierarchy (Lieberthal & Lampton, 1992), creating a kind of "bubble" that sustains self-enforcing inattention among elite leaders (Jones, Thomas, & Wolfe, 2014).

Although information asymmetry in authoritarian systems can be mitigated through limited representation and engagement with the citizenry (Gandhi & Lust-Okar, 2009; Truex, 2014), recent theory development has strengthened the argument relating this challenge more

specifically to bounded rationality. Communication theory has long shown how inefficiencies arise due to diversity and variance in signals (Shannon & Weaver, 1949). Apply the information-theoretic propositions to government information processing, Frank Baumgartner and Bryan Jones (2014; see also Boydstun, Bevan, & Thomas, 2014) argue that attention allocation in government is subject to similar issues in communication efficiency: actors are interested in minimizing noise in the signals they receive and process. For them, information processing involves a tradeoff between diversity and clarity. This challenge creates an incentive to censor inconsistent views or marginal issues by setting up powerful barriers to keep external players out of decisional processes (Baumgartner & Jones, 2014).

Policymakers in the authoritarian system from "the temptation of clarity" (Baumgartner & Jones, 2014) in that their decisions are necessarily based on clear (i.e. noise-free) but low quality information that fails to capture the dynamism and complexity of the task environment. Even when the policymaker is actively in search of information, they often find themselves trapped in decisional settings with low supply of "entropic information", or information that is drawn from multiple non-redundant sources (Baumgartner & Jones, 2014). This is necessarily the case in political systems that censor and suppress dissenting views in the interest of regime survival. Even if we take into account the policymaker's ability to gather information on specific issues that have come to their attention, information returned by directed search is fundamentally different from information returned through bottom-up representation because the former is constrained by existing priorities while the latter mitigates biases by allowing external influences to challenge and even change them (Baumgartner & Jones, 2014). Studies by Tullock (1987) and Wintrobe (1998) contend that authoritarian regimes are primarily concerned with political

survival; as a result their priorities are likely to become restricted to the narrow set of issues closely tied to threats to regime survival at the expense of other problems.

As such, the institutional foundations of punctuated instability under authoritarianism are radically different from those underlying punctuations in the liberal democratic context. Whereas minority obstructionism in democracies creates friction against incremental changes in attention allocation, authoritarian decision-makers are exposed to similar risks of punctuated instability by marginalizing these groups as challengers from the policy process. Their exposure to information becomes constricted, meaning that new issues and problems not related to existing priorities cannot engage government attention and drastic adjustment only happens when the problems become serious enough to threaten regime survival. Specifically such threats concern internally organized challenges to the dictatorial regime (Wintrobe, 1998), and in China such threats against the Communist Party and the government that it controls have led to greater alertness to signs of growing social unrest (Pei, 2009). We use the case of regional governments in China to illustrate how punctuated equilibrium arises in a contemporary authoritarian regime and in what ways its foundations differ from the democratic case.

Information and attention allocation in China's regional governments

Regional administration in the People's Republic of China (PRC) provides an effective illustration of the dilemma of governance attendant to contemporary authoritarianism. In the Chinese provinces, policy changes often arise from bottom-up interactions between government and public, whereas top-down management of regional changes faces considerable structural inertia (Lampton, 1987). These differences create inefficiencies in the policy process. On the one hand, the Communist Party focuses on regime durability through stability, causing considerable inertia in the policy process. On the other hand, drastic policy change is adopted when long-

standing policies lose effectiveness and contribute to widespread discontent in the community. These competing tendencies contribute to a dynamic of government attention allocation that differs significantly from comparable information processes in democratic governments.

The Communist Party of China (CPC) centralizes power through the so-called double-track system modeled on the Soviet nomenclature and administrative appraisals. Under the double-track system, each leading position in the administrative hierarchy is split into two offices, one occupied by a Party official and the other by a government cadre (Burns, 1994). Power is centralized by giving the Party appointees control over their civil service counterparts (Burns & Wang, 2010). In addition, administrators are strongly motivated to meet the performance targets dictated by the Party because their career prospect stands to be adversely affected if they fail to meet the assigned targets (Edin, 2005). These arrangements make it difficult for lower rank officials to dispute or challenge decisions dictated by the upper level authorities.

Widespread bargaining in the Chinese bureaucracy is indicative of the inability of Chinese grass-roots administrators to coordinate and organize substantial change within the bureaucratic hierarchy (Lampton 1987; Lieberthal & Lampton, 1992). While the lower strata of the administration appear to be bogged down, top leaders do exercise coercive power to push radical reforms—after all major reforms such as the one-child policy would have been impossible without the extensive coercive resources at the government's disposal—but its use comes with an emphasis on sustainability (Lampton, 1987). What this means is that the use of coercion as a scarce resource is kept to a minimum. Policy inertia dominates the policy process as the top leadership avoids the use of coercion while lower-level officials can bargain only on the edges of current policy. The transition toward shared leadership at the top in the post-Mao

era only reduced the use of coercive power because of increased costs of coordination (Lieberthal & Lampton, 1992).

If institutional centralization internally drives punctuated dynamics by concentrating power in the top Party leadership, China's active suppression of collective action in favor of "managed" citizen participation does nothing other than reinforce policy inertia (Cai, 2004; Chen, 2012). Some have argued that growing institutional fragmentation has created new opportunities for citizen participation and civil society actors are getting more involved and influential (Gilley, 2012; Mertha, 2009; 2010; Zhan & Tang, 2010). However, the legal framework to institutionalize and facilitate participation remains underdeveloped, curtailing civil society actors' ability to challenge government decisions (Zhan & Tang, 2010; Lo & Leung, 2000). Even in environmental policy, the most advanced domain in terms of public participation, strong state control persists and NGOs only focus on education and other non-contentious activities (Zhan & Tang, 2010). Limiting participation is highly unfavorable to sustaining policy adaptation, as the exclusion of social actors creates a "malign lock-in effect" in which a paucity of public interest makes authoritarian control both more necessary and more difficult (Gilley, 2012, 300).

Protests, online activism, and other non-institutionalized mobilization in China are either actively contained (Chung, Lai, & Xia, 2006; Perry & Selden, 2003) or manipulated to serve the government's political agendas (Weiss, 2013). The government tends to regard these spontaneous activities as a threat to regime survival (Pei, 2006). In the interest of social stability, regional governments are expected to keep the frequency and scale of such protests at a minimum (Cai, 2004; Edin, 2003). For example, local party and government officials often act quickly to suppress labor disputes because such disputes could easily graduate into mass protests

(Randall & He, 2009). At the same time, issue-specific protests are tolerated insofar as they do not turn into boundary-spanning collective action (Chen, 2012; Perry, 2001). The expansion of Internet access has spurred a new wave of online activism (Yang, 2013). However, the government has updated its social monitoring and censorship programs for online activities, with a similar focus on the containment of collective action (King, Pan, & Roberts, 2013). Regional governments in China rely heavily on the appeals or *xinfang* ("letters and visits") system, which allow citizens to submit individual or collective complaints about current policy (Jiang & Xu, 2009). As a form of "controlled" participation, the appeals system is well-integrated into the Chinese bureaucratic tradition, with offices for citizen appeals in almost all government ministries, departments, and units (Minzner, 2006) collectively processing more than 10 million cases each year (Zhang, 2008). Like social mobilization, the appeals system generates critical information for policymakers (Cai, 2004; Shi, 1997). Citizens are encouraged to submit appeals because the system can serve as an alternative to more aggressive forms of mobilization and help locate sources of social discontent before the issues evolve into serious unrest (Chen, 2012). However, the effectiveness of the appeals system is limited for a combination of reasons. Despite well-known examples of appeals leading to important policy changes (Cai, 2004; Randall & He, 2009; Zhang, 2008), officials often seek to "increase the costs or risks involved in appeals" so that opportunists are turned away and will "neither pose a serious threat to social stability nor thwart reform" (Cai, 2004, 451). .

In conclusion, regional governments in China realize major challenges in attention allocation that are uniquely associated with authoritarianism. While they have extensive control over the government agenda, which has become largely impervious to external disruption thanks to a highly developed system for managed participation (Cai, 2004; Chen, 2012), political

leaders have low information and incentive to press for policy change due to the very institutions that also disempower policy challengers in the first place (Pei, 2006). As the top leaders in the regional administrative hierarchy have the necessary power to contain and direct citizen advocacy, confine the exercise of bureaucratic discretion to marginal bargaining, and organize very drastic change only when the need to do so becomes compelling, China's policy process alternates between bottom-up inertia inside the "bargaining treadmill" and very rare but dramatic shifts dictated by the elite (Lampton, 1987).

Hypotheses

The decision-making process in China outlined above entails an alternative theory for punctuated equilibrium in authoritarian systems. First, we hypothesize that attention allocation in authoritarian regimes experience episodic shifts.

H1: Attention allocation in the authoritarian state is punctuated.

Punctuated equilibrium arises because authoritarian elites are just as susceptible to cognitive biases as the officials and policymakers in liberal democracies. Cognitive factors that lead to punctuated equilibrium in liberal democracies should remain potent determinants of the volatility of policy change in spite of the significant reduction in institutional friction. Decision, transaction, and information costs can be reduced but not eradicated even with more streamlined institutions for centralized control (Jones & Baumgartner, 2005).

Considering the additional role of institutions, we modify H1 to

H1': Attention allocation in the authoritarian state is substantially more

punctuated than attention allocation in liberal democracies.

Contrary to what we currently know about punctuated equilibrium and institutional friction (Jones et al., 2009), policy instability should really become more intensified in

authoritarian regimes because, unlike liberal democracies, authoritarian systems actively

suppress opposition in the interest of stability and compliance. These actions lower institutional

friction, but disabling the opposition also means fewer opportunities and incentives to learn

about and act on new problems; stasis sets in and problems go uncorrected until they graduate

into serious threats to regime survival, at which point policymakers scramble to introduce radical

changes, again without an effective opposition to mitigate the extent of change. Punctuated

equilibrium grows in intensity because authoritarian institutions lack the mechanisms to inhibit

these excesses.

   The state governments in the United States (Breunig & Koski, 2006) and local

governments in Denmark (Baumgartner et al., 2009) exhibit varying levels of punctuated

intensity. The same should be expected of authoritarian governments at the regional level.

However, exposure to information rather than minority obstruction determines the intensity of

punctuated equilibrium in the authoritarian state, therefore

> *H2: An increase in signals indicating threats to regime survival corresponds with*
>
> *less punctuated attention allocation, i.e. changes are more frequent but less*
>
> *intense.*

Our contention is that the level of punctuation in authoritarian governments should be

largely determined by the level of perturbations to which they are exposed. In China, regional

administrations facing fewer perturbations should experience more intense punctuations because

the tendency to equilibrate is infrequently disrupted. Regional administrations that are more

exposed to signals should experience more frequent, but less intense change; their long-run

instability should in fact be less severe compared to provinces facing fewer indications of social

instability.

The current analysis will not fully address the context-specific information processing by the Chinese government. Instead, it will focus on the exposure to bottom-up information about social instability, even though regional governments in China struggle with not only the demands from the general public but also those imposed on them by the central government. The more detailed mechanisms of top-down control, which incidentally is instrumental to the prioritization of containing social unrest by regional governments, are beyond the scope of this analysis in the interest of a more targeted response to the general theoretical question about punctuated equilibrium in the non-democratic context.

Data and Methods

To estimate the level of punctuated intensity, we compiled a novel dataset on the changes in regional government spending from the *China Statistical Yearbook* published by the National Bureau of Statistics of the People's Republic of China from 1996 to 2013, which report spending figures from 1995 to 2012. Focusing on budgetary changes in more recent years increases the consistency of the data because government budget reporting has undergone extensive standardization in the post-Mao era and remained relatively consistent since then (Bahl, 1999; Jin, Qian, and Weingast, 2005; Fan, 1996; Wang 1997). Using official public finance data could create complications for our analysis because regional governments in China sometimes operate on off-budget income and expenditure (Tan, 2008; Wong, 2007; Man and Hong, 2011). This problem, however, is mitigated by the fact that our data concerns government spending rather than income. In fact, a large proportion of extra budgetary income goes into provincial

governments' expenditure, which is reflected by official spending figures (Fan, 1996).[1] Moreover, scholars have found that most of the "off-budget" allocations provide funding for large infrastructural projects and state-owned enterprises (SOEs) (Wong, 2007, 2013; Tan, 2008). Because off-budget spending in regional governments is consistently restricted to a few specific policy areas, its omission from our data does not undermine its ability to reflect general changes in provincial policy priorities.

Another concern is that a level of subnational autonomy from the national government is requisite to the attribution of punctuated instability to regional administrations (Breunig and Koski 2006). This is pertinent to China, where regional expenditure was traditionally managed in a top-down fashion. Two trends in public finance have made regional spending largely aligned with local priorities, so that the provincial and regional budgets are indicative of attention allocation at that level. First, regional governments now form their own budgets after fiscal decentralization in the 1990s (Su and Zhao, 2004; Kung, Xu, and Zhou, Forthcoming). Second, while the central government organizes inter-regional revenue transfers to equalize development, it does not dictate the use of the redistributed funds (Dabla-Norris 2005).

The dataset includes government spending of 28 region governments at the province-level administrative division, of which 23 are provinces and 5 are autonomous regions. We do not include the direct-controlled municipalities (Beijing, Tianjin, Shanghai, and Chongqing) to increase unit homogeneity, and observations from Sichuan before 1998 are dropped because

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[1] After the tax reform of 1994, a large portion of the provincial revenues is transferred to the central government. For example, only a quarter of the value-added tax is retained on average by the provincial governments (see Wang, 1997). Regional governments become dependent on extra-budgetary revenue to cover the financial shortfall created by the fiscal recentralization.

Chongqing was part of the province until March 1997. Our coding follows the original budget records that sort government spending into categories in correspondence with the policy responsibilities of the major government agencies and ministries (see Appendix 1).

For each policy topic in each region, we compute a "change" score to characterize year-to-year adjustments in budgetary allocation (see Breunig and Jones 2011). We first calculate the "percentage-percentage differences" which capture yearly changes in the share of each policy topic out of the total government budget. Then we compute the difference in proportion for each interval using the formula

$$d_{it} = \frac{(p_{it} - p_{it-1})}{p_{it-1}} \cdot 100,$$

where p_{it} and p_{it-1} are the shares policy topic i received in years t and $t-1$, respectively. Following Padget's (1980; see also Jones & Baumgartner, 2005) argument, if changes are "efficient" (incremental), d should be normally distributed, whereas "inefficient" (non-incremental) changes converge to a leptokurtic distribution characterized by peakedness and heavy tails (Figure 1). These features arise from the clustering of disproportionately small changes about the mean and the dispersion of disproportionately large changes to the tails. Non-incremental changes produced by punctuated equilibrium should follow a non-Normal probability distribution of such a description.

L-kurtosis provides a normalized measure of leptokurtosis (Hosking, 1990). The L-moment statistic is more robust to the presence of extreme outliers than the standard of kurtosis values because it uses order statistics instead of raw values (Breunig & Jones, 2011). L-kurtosis is bounded between 0 and 1; it is equal to .123 for the normal probability distribution, i.e. incremental changes, but exceeds .123 for changes generated by a punctuated, or inefficient, process. Higher values correspond with more intense punctuations.

(Figure 1 about here)

We use labor disputes as a proxy of impending social instability threatening regime survival. Chinese leaders perceive protests initiated by industrial workers to have serious destabilizing effects and are attentive to such incidents (Lum, 2006); better educated and more extensively connected than protestors in rural areas, industrial workers tend to be more effective mobilizers (Lum, 2006). We do not intend to argue labor protests directly shape the general dynamic of policy change because the issues that are raised by these protests are often limited to certain domains, such as state-owned enterprise reform and wage inequity (Lum, 2006; Tanner, 2010). Rather, our contention is that because workers are capable of organizing large-scale movements (Lum, 2006), policymakers facing an increase in labor disputes are more ready to adopt across-the-board policy change to address outstanding socio-economic problems before disputes escalate into protests and large-scale unrest about more general issues. This link is reinforced by the scholarly consensus in labor studies that worker protests are a frequent and significant trigger for general social unrest in China (Friedman & Lee, 2010).

As important alternative sources of social instability, environmental protests and land use conflicts are only being monitored in recent years (Halegua, 2008; Randall and He, 2009) and documentation is sporadic (Zweig, 2000; Van Rooij, 2010). Compared to labor disputes, environmental protests are more spontaneous, less contentious, and often limited to local programs or sites (Stalley and Yang 2006; Kung, Xu, and Zhou, Forthcoming). Similarly, land use conflicts are often directly managed by township governments without provincial interference (Guo, 2001; Zweig, 2000). While labor disputes as a measure of instability comes with other constraints, the central role of labor in the political economy of authoritarian regimes makes it more adaptable to future studies on comparative punctuated equilibrium beyond China

(Valenzuela, 1989). Further, the use of statistics aggregated across decades in this study may help contain the influence of endogeneity between labor disputes and government policies, but the problem will require attention in future analysis if the year-to-year figures are handled differently.

Since accurate statistical data on labor protests are unavailable, we adopted labor disputes data, which is closely correlated with labor protests (Friedman & Lee, 2010; Lum, 2006), as our proxy for social instability. Although not all labor disputes evolved into protests, labor disputes consistently reflect underlying problems of which such the protests are also symptomatic (Chen, 2000; Lee, 2002). We computed the labor disputes per capita for each of the 28 regions based on the *China Labor Statistical Yearbook* from 2002 to 2009. These estimates, which we turned into per capita values using population data from the *China Statistical Yearbook*, provided us with annual rankings of the regions by intensity of labor disputes. Using the R package RankAggreg (Pihur, Datta, & Datta, 2009), we converted these multiple yearly rankings into a single ranking in ascending order reflective of persistent differences.

(Table 1 about here)

Findings

Our data provides strong support for the information exposure hypothesis. In addition to the proposition that punctuated equilibrium is present in the Chinese regional governments (H1 and H1′), our data also shows that the intensity of punctuated equilibrium varies cross-sectionally with labor disputes, suggesting a role for information exposure as advanced in H2.[2]

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[2] Our estimates appear to be robust to the "near zero-budget" problem, which refers to the inflation in the L-kurtosis value due to very small allocations to particular years. By incrementally removing year-to-year changes associated with small lagged allocations, our

(Figure 2 about here)

According to H1′, the Chinese regional governments should experience an intensification of punctuated equilibrium compared to democracies. Figure 3 compares the maximum, minimum, and mean L-kurtosis values of the Chinese data with a selection of national and regional figures. With a mean L-kurtosis value of 0.87, the Chinese regional governments exhibit extreme levels of punctuations in budgetary allocations unseen anywhere in the literature: L-kurtosis values range from 0.37 (United Kingdom) to 0.54 in the United States at the national level. As for subnational budgets, the local governments in Denmark and the State governments in the United States have a pooled L-kurtosis value of 0.363 and 0.402, respectively, again substantially lower than the Chinese estimates (Kurtosis value estimates drawn from Baumgartner, Foucault, & François, 2006; Baumgartner et al., 2009; Breunig, 2006; Jones et al., 2009).

A comparison of the Chinese estimates with those from Hong Kong whose government adopted a more liberal form of authoritarian rule provides further evidence of a systematic relationship between the extent of authoritarian control and punctuated intensity. Lam and Chan (in press) show that the intensity of punctuated equilibrium in postwar Hong Kong declined over time as the political system transitioned into an electoral authoritarian regime in the post-colonial era (Scott, 2000). Hong Kong's punctuation estimate (L-kurtosis = 0.713) for 1946-1985 were similar to the least punctuated regions in China, such as Guangdong (0.659) and Ningxia (0.717). The post-reform (1985-2007) estimate is 0.49, placing it among the more centralized democracies such as Denmark. Since China and Hong Kong represent different forms of

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sensitivity analysis (see Appendix 2) shows that punctuated intensity stays well above all of the figures from the democratic states in Figure 2.

authoritarianism, the new Chinese estimates reinforce the empirical basis for the intensification

of punctuated equilibrium as a feature of authoritarian control and the structural and institutional

foundations to the cross-regime variation in the dynamic of attention allocation.

(Figure 3 about here)

Apart from the cross-regime comparisons based on current literature, we carried out

further analysis to make sense of the considerable variability of punctuated intensity across the

regions. H2 suggests that policymakers in authoritarian regimes tend to adjust attention

allocation more frequently in face of a surfeit of signals indicating emerging threats to regime

survival, proxied here by labor disputes; their readiness to adopt general policy changes leading

to a significant drop in the intensity of punctuated equilibrium. Figure 4 indicates the existence

of such a correlation. As labor disputes fall in frequency, punctuated equilibrium intensifies.

Since labor disputes are one of the most salient sources of risk of social instability in Mainland

China and officials are consequently highly attentive to these signals (Pei, 2006), a significant

correlation is consistent with the notion that authoritarian systems changes attention allocation

more frequently when perturbed by events that fall within the narrow set of regime priorities.

In terms of the test analytics, Figure 4 presents the correlation estimates using the

Kendall rank correlation statistic, revealing that the frequency of labor disputes and the intensity

of punctuated attention allocation are significantly and negatively correlated ($p < 0.05$) at

$\tau = -0.276$. A negative correlation coefficient means that as regional governments face more

frequently signals of social instability, the intensity of punctuated attention allocation falls (H2).

(Figure 4 about here)

Our findings have considerable implications for the theory of government information

processing. First, policymakers in authoritarian settings cannot use centralization to mitigate the

intensity of punctuated equilibrium. As our theory suggests, attention allocation in the Chinese

regional administrations exhibits strong punctuated instability not because of friction but because

of a lack of information exposure. The correlation analysis provides cross-sectional evidence in

support of the information exposure hypothesis as a viable alternative explanation. China's

appeals system imposes severe restrictions on the expression of contradictory views and agenda

conflict means that problems falling outside of current policy priorities can only be infrequently

detected. Because most information does not filter through formal channels and government

priorities are protected from challenges, extraordinary events such as labor disputes are about the

few effective indicators of social unrest that can draw the attention of regional government

officials.

Conclusion

Our paper contributes to the theory of government information processing by clarifying the cause

of punctuated equilibrium in the authoritarian context. We agree that minority obstruction is a

critical factor in punctuated equilibrium as far as liberal democracies are concerned, but contend

that it has a limited role in the authoritarian state. Punctuated equilibrium emerges in

authoritarian states because officials have poor exposure to information, which undermines their

ability and incentive to make frequent adjustments to the status quo. At the same time,

authoritarian institutions allow decision-makers to undertake radical changes unopposed when

they become alerted to signals indicating threats to regime survival. Our analysis of a novel

dataset from China shows that these conditions jointly contribute to extremely high levels of

punctuation in authoritarian systems, and furthermore links the intensity of punctuation to the

signals of social instability in the provinces.

The findings extend punctuated equilibrium to non-democratic contexts and open up promising directions for future comparative studies. With respect to the primary focus on regime structure, the analysis highlights an alternative role of minority obstruction as a factor in punctuated instability: in addition to obstructing change in the status quo and causing errors to accumulate, minority groups also serve the important function of challenging existing policy priorities (Liu, Lindquist, Vedlitz, & Vincent, 2010; Jones, Baumgartner, & Talbert 1993; Pralle 2006). The inefficiencies of institutional friction are mitigated by an assertive and effectual opposition. By contrast, when decision-making is so centralized that minority opposition becomes practically meaningless—as in the case of many regional governments in China—punctuated equilibrium grows substantially more intense. This alternative role of minority groups in information processing provides an important theoretical link between institutional friction and information exposure as alternative mechanisms underlying punctuated instability across regime settings.

Our work also answers recent calls to engage research on China comparatively to test and enrich general political theory (Hudson, Kühner, & Yang, 2014). Specifically, while the formation and pattern of social unrest has been a common theme in China studies (Weiss, 2013), few have analyzed how social unrest may affect policymaking. Our study explicitly associates the dynamic of government attention allocation with signs of social instability. In the analysis, we find that policy priorities change more frequently and consequently with less punctuation when the level of social instability is high. In considering cross-domain attention allocation, our analysis supplements studies that look at specific domains such as the environment (Schwartz, 2003) and fiscal policy (Shih, 2008).

Finally, limitations on theorization and analysis deserve further discussion with respect to future research opportunities. Because of our focus on the theoretical link between the comparative literature on the dictator's dilemma and punctuated equilibrium outside of the democratic system, the scope of this inquiry confines the analysis to information exposure as a possible contributor to punctuated intensification in China. Our conclusion does not imply that information exposure provides the only mechanism for punctuated changes in China, where regional administrations operate between pressures emerging from public demands and those coming down from the central government through top-down control. Future studies modeling attention allocation and bureaucratic processes in China should take into account other known mechanisms underlying bureaucratic behavior in regional governments, such as the promotion and demotion of officials and other processes for centralized regional control by the national government (Landry, 2008).

Future studies would also benefit from an expanded analysis of the appeals system as a unique feature of Chinese administrative tradition (Cai, 2004). Although the appeals system as a whole is substantially less effective than the democratic institutions for representation and advocacy, the performance of the appeals system may still vary depending on local designs. Jiang and Xu (2009) find that some regional appeals systems vary in responsiveness, frequency of visits, and processing rate. Whether the impact of exposure on punctuated equilibrium changes with the openness and effectiveness of citizen appeals is an important theoretical question for future research, but the challenge would be a tall one given the lack of comprehensive data on citizen appeals at the regional level.

In conclusion, we propose a practical road map to pursue these questions given outstanding data limitations. Unlike liberal democracies, data on dissent and policy participation

is politically sensitive and rarely made available in closed political systems (Tsai, 2010). This paucity of data has prevented scholars from testing other specific causes underlying the variation of punctuated intensity in authoritarian governments. In the intermediate term, scholars may focus on policy issues where information about regional government's interactions with national and local actors is easier to access (e.g. environmental policy). Existing literature suggests that China's policymakers attend to other priorities, such as economic growth and leadership changes, and future analysis focusing on China politics and bureaucracy may also consider these alternative factors as new research directions.

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TABLE 1. Data from the regional governments of China

Region	L-kurtosis[b]	Dispute ranking[c]
Anhui	0.90	3
Fujian	0.92	24
Gansu	0.93	2
Guangdong	0.66	28
Guangxi	0.91	13
Guizhou	0.84	5
Hainan	0.85	16
Hebei	0.80	12
Heilongjiang	0.86	17
Henan	0.89	6
Hubei	0.86	19
Hunan	0.86	7
Inner Mongolia	0.92	8
Jiangsu	0.86	29
Jiangxi	0.99	4
Jilin	0.82	18
Liaoning	0.88	20
Ningxia	0.71	15
Qinghai	0.87	14
Shaanxi	0.99	9
Shandong	0.82	22
Shanxi	0.91	10
Sichuan	0.86	11
Tibet	0.99	25
Xinjiang	0.87	21
Yunnan	0.97	1
Zhejiang	0.82	23

Note:

[b]Measures the intensity of punctuated equilibrium; greater values indicate more intensification.

[c]Aggregated from annual rankings of labor disputes per capita in each region.

Appendix 1

Chinese Regional Government Spending, 1996-2013

|	As a share of total regional budget		
Topic	Mean	Minimum	Maximum
1. Agricultural administration and development	7.92%	1.18%	19.36%
2. Armed police and the procuratorate	6.53%	2.53%	20.78%
3. Banking, commerce, and financial supervision	1.23%	< 0.01%	14.42%
4. Capital construction	7.40%	3.13%	40.74%
5. Circulating fund	0.12%	< 0.01%	4.35%
6. City maintenance and urban and rural development	7.07%	0.80%	28.18%
7. Culture, sports, and broadcasting	2.93%	1.09%	31.73%
8. Education	15.01%	0.83%	26.89%
9. Environmental protection and conservancy	1.69%	0.18%	10.86%
10. Foreign affairs	0.03%	< 0.01%	0.29%
11. General public services	4.34%	6.01%	22.13%
12. Geological prospecting and land resource development	1.35%	< 0.01%	11.26%
13. Government operation and administration	9.34%	3.70%	28.03%
14. Grain and oil reserves	0.27%	0.12%	7.82%
15. Industry and transportation	2.90%	0.16%	15.36%
16. Interest payment	0.13%	< 0.01%	3.18%
17. Medical and public health	4.65%	2.51%	9.21%
18. Miscellaneous	7.84%	0.32%	26.19%
19. National defense	0.16%	0.01%	14.71%
20. Policy-oriented subsidies	0.97%	0.92%	15.11%
21. Price subsidies	1.60%	0.02%	14.33%
22. Reconstruction	0.20%	< 0.01%	19.06%
23. Science, technology, and innovation	5.48%	0.39%	33.70%
24. Social security net, welfare, and pensions	9.11%	0.10%	25.49%
25. Special items	1.09%	< 0.01%	20.68%
26. Taxation administration	0.50%	1.53%	8.41%
27. Trade and export	0.04%	< 0.01%	0.84%
28. Vehicle tax	0.10%	< 0.01%	4.14%

Note: Policy topics adopted from the *China Statistical Yearbook*

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Appendix 2

**Sensitivity Analysis**

[Figure 5 about here]
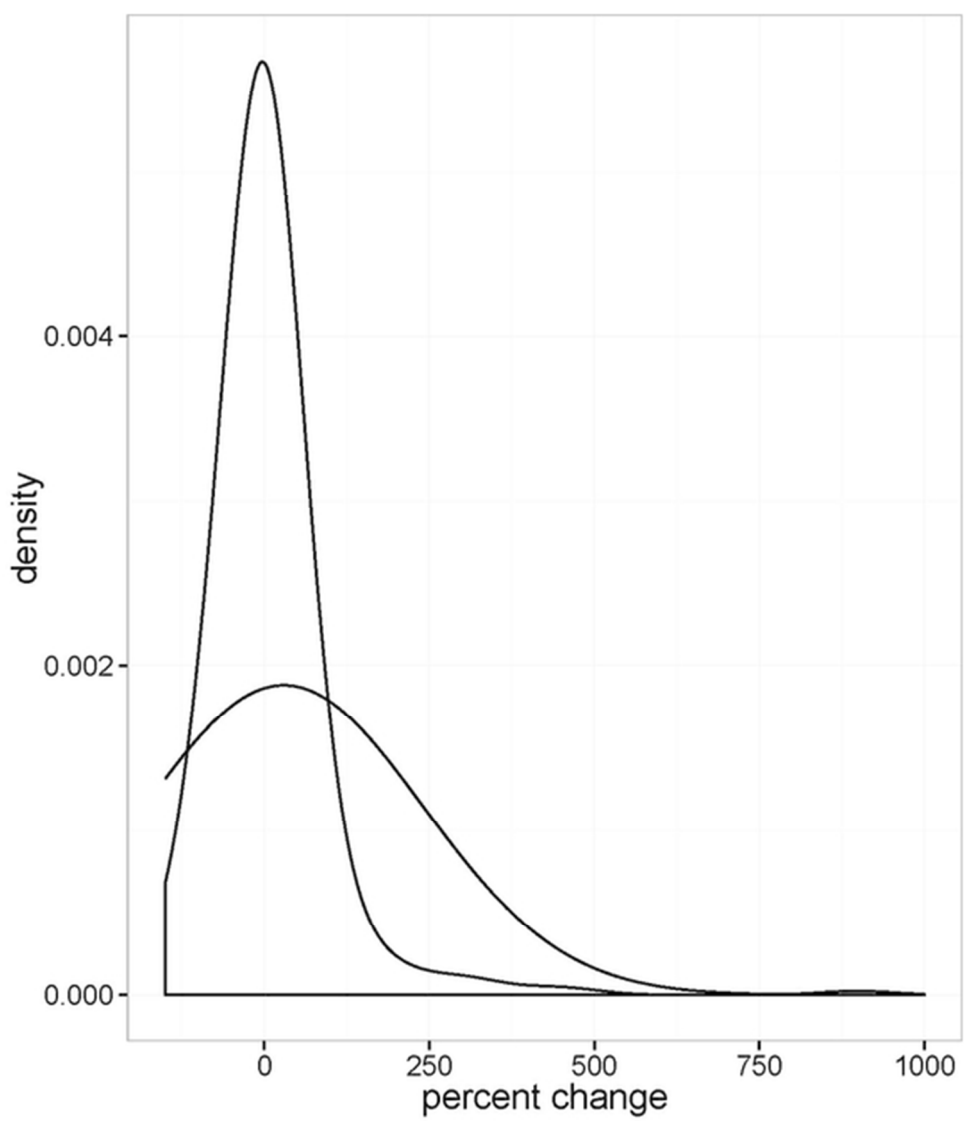
Distribution of Empirical Budgetary Changes (Guangzhou) and the Gaussian Distribution of the Same Mean
and Variance.
25x29mm (600 x 600 DPI)

Punctuated intensity: interregional differences within the PRC.
Darker colors mean more intense punctuations. Note: the municipal governments of Beijing, Tianjin,
Shanghai, and Chongqing, are not included in the analysis.
254x203mm (200 x 200 DPI)
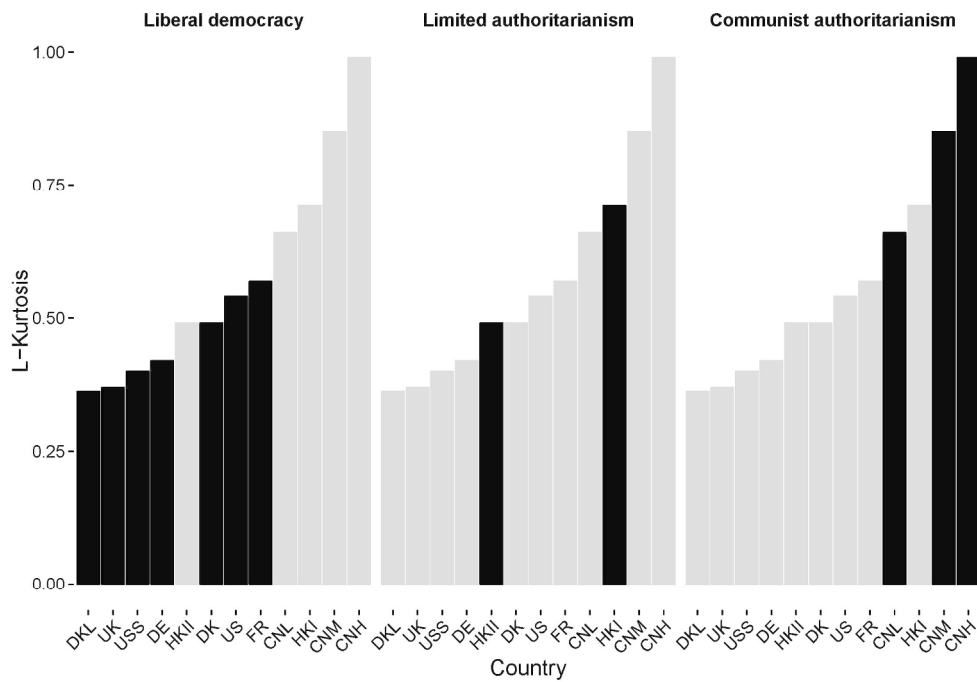
Punctuated intensity: international comparison. Note: There is a clear clustering of L-kurtosis estimates by regime type. The liberal democracies (DKL: Danish local governments, UK: United Kingdom, USS: United States state governments, DE: Germany, DK: Denmark, US: United States, and FR: France) have the lowest intensity. The Chinese figures (CNL: lowest estimate from Guangdong, CNM: mean region kurtosis value, and CNH: highest estimate from Shaanxi) take up the top places in the list. Hong Kong is divided into two periods (HKI: 1946-1984, HKII: 1985-2007) to reflect changes in punctuated intensity correspondent with the adoption of major democratic institutions during the 1980s.

292x203mm (200 x 200 DPI)
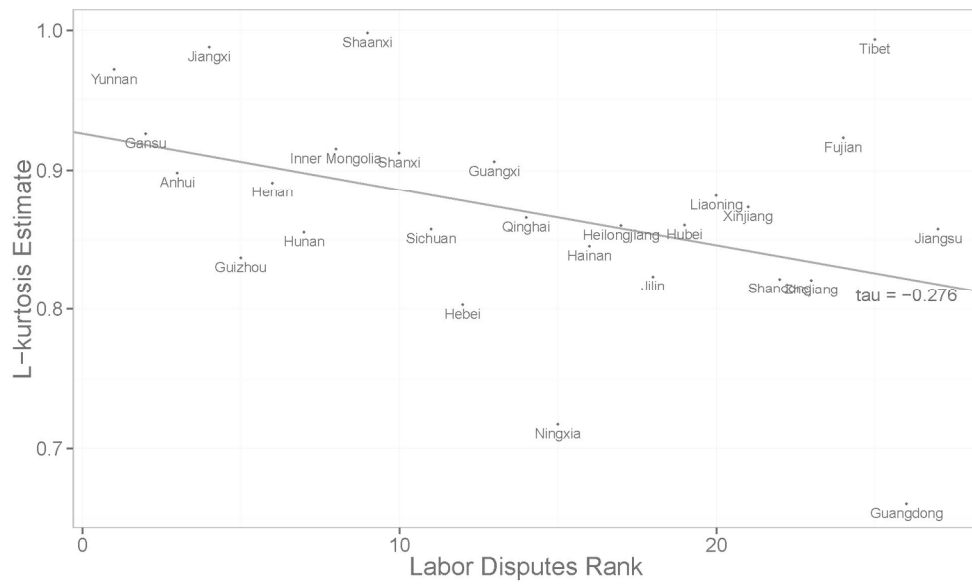
Intensity of punctuated attention allocation and frequency of labor disputes. The Kendall rank correlation is significant at $p < 0.05$ (Kendall tau = -0.276).
254x152mm (200 x 200 DPI)
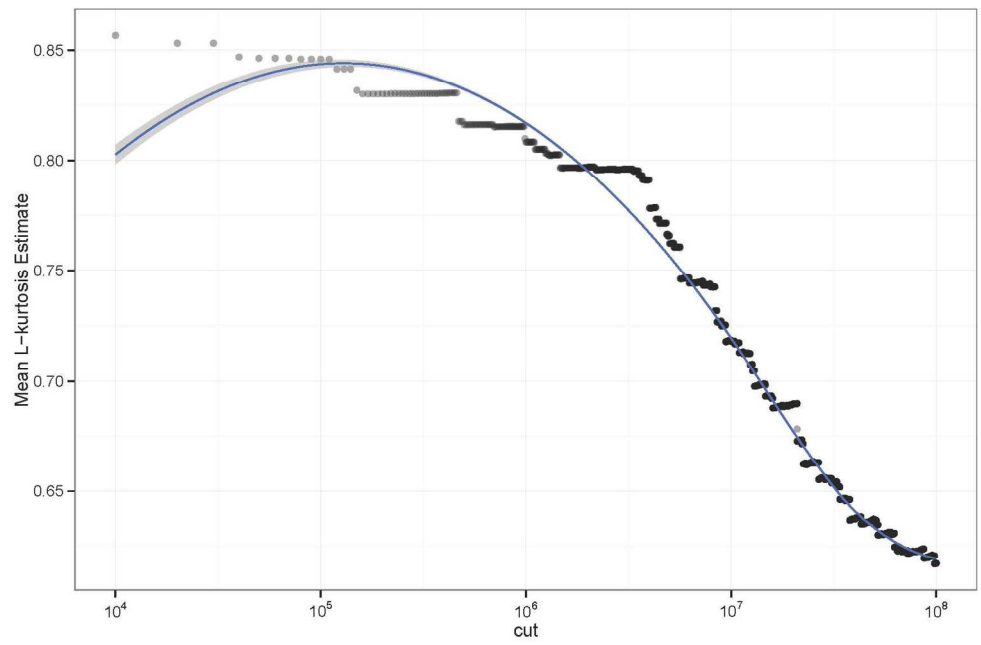
The L-kurtosis value estimates are robust to the removal of year-to-year percentage changes with small lagged allocations, in increments of RMB10,000 from RMB10,000 to RMB100 million. The cross-region L-kurtosis average values, which are fitted with LOESS, remain well above the corresponding figures from traditional liberal democracies such as the United States and France (Jones et al. 2009).
228x152mm (200 x 200 DPI)