ORIGINAL ARTICLE

How policy agendas change when autocracies liberalize: The case of Hong Kong, 1975–2016

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Abstract

This article considers how autocrats decide to expand or narrow the issue diversity of their policy agenda during a period of political liberalization. Prior studies have two competing perspectives. First, political liberalization increases the social and political freedom that enhances information exchange, and thus expands issue diversity. Second, political liberalization decreases government's control of the legislature and thus narrows the issue diversity. This article offers a novel theoretical perspective by combining these two countervailing theories. Specifically, it predicts a diminishing marginal benefit of information exchange and an increasing marginal bargaining cost. As such, this article argues that issue diversity follows a negative quadratic (inverted-U) relationship as the regimes liberalize. The analysis of a new and unique dataset of Hong Kong's legislative agenda (1975 to 2016) offers support for this theory. This study sheds light on policy-making in authoritarian regimes and democracies, and advances the theory of information processing.

1 | INTRODUCTION

Different policy issues compete with each other and are at the heart of the study of the policy-making processes (John and Margetts 2003; Jennings et al. 2011; Bevan 2015; Greene 2016). Competition between issues inundates policy-makers with a vast amount of information. Different political actors advocate different policy concerns and problems from a wide range of issues such as the economy, trades, labour, public services, crime, transportation, welfare, education, and health. The overwhelming information requires policy-makers to decide what to pay attention to

and what to ignore (Jones 2001; Jones and Baumgartner 2005; Walgrave and Dejaeghere 2017; Chan and Lam 2018). If the policy-makers pay no attention to a certain piece of information, policy change cannot take place (Baumgartner et al. 2011, pp. 948–49). Therefore, understanding the allocation of attention has a profound implication on policy change.

This study examines the issue diversity of the policy agenda—the concentration of policy-makers' attention across different policy issues. It looks at a portfolio of policy issues rather than a single or a few issues. The allocation of attention to issues is not independent; paying more attention to one issue would inevitably mean less to another (Zhu 1992). The study of the issue diversity of the policy agenda can capture the interdependence of policy attention (True et al. 2007).

Most related work focusing on advanced democracies suggests that the electoral process has a vital role in shaping political attention (Green-Pedersen and Mortensen 2010; Jennings et al. 2011; Greene 2016). They do not consider, however, the possible effect of political liberalization on the issue diversity of the policy agenda. This article considers how autocrats decide to expand or narrow their focus on policy issues in their finite policy portfolio. Theorizing and examining how issues compete in authoritarian regimes when regimes liberalize provides an opportunity to understand the effect of institutional change and political parties in the policy agenda debate.

Following Dahl's classic work *Polyarchy* (1973), political liberalization is defined as more inclusive and competitive elections (see also Coppedge et al. 2008). Political liberalization leads autocrats to have less control and political advantage over political affairs. The process of political liberalization injects the systems with more democratic elements such as the right to elect and the right to be elected. In more inclusive and competitive elections, candidates that do not belong to the governing party can participate in the electoral process and have a chance to enter the legislature through electoral campaigns. Candidates thus have more freedom to organize and form a political party so that they can have more political capital (Wahman 2011) and have a greater chance to defeat the autocrats (Levitsky and Way 2010). An implication of the process of political liberalization, defined as more inclusive and competitive elections, is that it increases the number of political parties and changes the partisan composition of the legislature— moving the authoritarian regimes away from the common one-party system or one-party dominant system. As such, it changes the party system and power distribution of the political system and alters the policy-making processes.

To understand the effect of political liberalization on the issue diversity of the policy agenda, this article offers a hybrid model by combining the insights of the contradicting bargaining and information exchange perspectives on policy processes. These two perspectives are distinct proponents developed in advanced democracies that explain how changes in the composition of the legislature affect the policy processes. The bargaining perspective, informed by the veto player, political gridlock and logrolling literature, asserts that a greater number of political parties increases the costs of policy-making (Mayhew 1991; Tsebelis 2002; de Marchi and Laver forthcoming). A greater number of political parties becomes an obstacle to the policy-making processes. It becomes more difficult to coordinate and secure consensus. In this way, a higher bargaining cost reduces the total number of policies. As the entire agenda space shrinks, the issue diversity of the policy agenda diminishes. In contrast, the information exchange process, informed by the issue competition literature, suggests that political parties provide policy-relevant information, expand policy-makers' political attention and result in greater a issue diversity of the policy agenda, meaning that policy-makers become more attentive to policy issues from broader policy topics (Green-Pedersen and Mortensen 2010; Greene 2016). These two perspectives, however, yield opposite and unresolved theoretical expectations.

Following Walgrave and Varone (2008), the hybrid model of the issue diversity of the policy agenda treats political parties as the key actors in the policy process. It argues that the electoral systems and the corresponding changes in the partisan composition of the legislature are both the source of bargaining and source of information exchange. It asserts that, as regimes liberalize, a greater number of political parties provide a diminishing marginal benefit of information exchange but also incurs an increasing marginal bargaining cost. As such, the hybrid model of these two countervailing processes expects that the two effects cancel each other out when reaching a maximum equilibrium point, and thus results in a negative quadratic (inverted-U) relationship between the number of political parties and the issue diversity of the policy agenda. Although the focus of this article is autocracies, the model is developed by

combining theories in democracies as well as autocracies. It thus has important implications for the wider study of comparative public policy.

Obviously, political parties are not the only political actors that influence how the government allocates its political attention across policy issues. The extant research shows that different political actors such as bureaucrats (Chan and Lam 2018) and the court (Owens 2010) have an impact on the policy processes. In particular, when regimes liberalize, interest groups (Bunea and Thomson 2015) and civil society (Zhan and Tang 2013) could have substantial influences on policy change should they become more vocal. Moreover, different actors from different sectors (e.g., the governing party and business elites or the opposition party and civil society) can form a stronger network to influence the policy processes (Wahman 2011). Still, some research focuses only on the effect of political parties on policy change (König et al. 2010). More importantly, many of the social demands from the interest groups and civil society create social cleavages. These social cleavages are reflected in the electoral arena that determines the number of political parties in the legislature (Ferrara 2011). Therefore, it is theoretically interesting to focus on the influence of political parties and examine how it changes the issue diversity of the policy agenda.

To test the effect of political parties during a period of political liberalization, this article analyses a novel and unique dataset from an undemocratic but transitioning system: the legislative bills of the Hong Kong Legislative Council (LegCo) between 1975 and 2016. Hong Kong's unique path of prolonged democratization offers a valuable opportunity to observe the effect of political liberalization and partisan composition of the legislature on the issue diversity of the policy agenda. The result shows a negative quadratic pattern between the number of political parties and the issue diversity of the policy agenda and thus provides rigorous support to the hybrid model.

To further illustrate the above ideas and finding, this article is structured as follows. First, it presents different theories of the issue diversity of the policy agenda based on the partisan composition of the legislature. Then, it generates a hypothesis of the effect of political liberalization on the issue diversity of the policy agenda. Next, to test the hypothesis, it undertakes a time-series analysis of the issue diversity of the legislative agenda in Hong Kong and evaluates to what extent the empirical evidence supports different theoretical expectations.

2 | MODELS OF ISSUE DIVERSITY OF THE POLICY AGENDA

Prior studies show two countervailing processes on how the different partisan composition of the legislature affects the issue diversity of the policy agenda, namely, the bargaining cost and information exchange. This section discusses a novel theoretical perspective that combines the insights of these two processes and presents the observable implications.

2.1 | Bargaining process

Policy-making is a bargaining process that involves compromise and trading of political interests (Tsebelis 2002; Eguia and Shepsle 2015; de Marchi and Laver forthcoming). The change in rules and ideological positions would change bargaining costs and thus the policy outcome. Bargaining process, as informed by the veto player, political gridlock and logrolling literature, states that a greater number of political parties increases the bargaining costs of policy-making and thus it is harder to produce more laws. As such, a lower number of laws reduces the issue diversity of the policy agenda.

The selectorate theory asserts that autocrats have to pay attention to a small group of selectorate only (Bueno de Mesquita et al. 2003; Manion 2017). Although disagreements could exist among the selectorate (Miners 1994), their ideological positions are more homogenous than the wider public. Similar to many previous works, this study assumes selectorates as homogenous. As such, the bargaining process of the policy-making in authoritarian regimes is smooth and easy (Truex 2014).

The process of political liberalization in authoritarian regimes increases the size of the selectorate. It is because the introduction of more inclusive and competitive elections allows more people to be elected and compete in the electoral process (Dahl 1973). As such, it requires a more considerable effort to reach a consensus between actors with different political motives, stances, ideas and interests (König et al. 2010; Eguia and Shepsle 2015). It thus increases the bargaining costs for policy-making. Although autocrats usually possess more resources and thus have more advantages in mobilization (Svolik 2012; Wong 2014), more inclusive and competitive elections also increase the likelihood that political opposition and political parties with a wider socioeconomic background will be elected to the legislature. Each of these political parties, because of their diverse backgrounds, possesses different knowledge, ideas and political stances. To deal with the inundation of information, the government is thus required to spend more time and effort to sort and filter out the diverse information in their formulation of public policy (Baumgartner and Jones 2015).

Through more inclusive and competitive elections, political parties with diverse political and socioeconomic backgrounds make it more difficult to adjudicate multiple competing interests. This increases the level of institutional friction (Jones and Baumgartner 2005) and the system is more prone to political gridlock (Baumgartner et al. 2013), although it may not affect important legislation (Adler and Wilkerson 2012). For instance, the veto player theory (Tsebelis 2002; Cox and McCubbins 2005) dictates that more political parties in the legislature increase the total number of veto points if their policy positions are very different in multiple policy domains. In effect, more veto points reduce the likelihood of the passage of a legislative bill. Alternatively, a greater number of political parties with diverse interests and policy positions create more opportunities for logrolling (or policy trades) (Greene and Jensen 2018; de Marchi and Laver forthcoming). Political parties bargain with each other and trade their votes for less salient issues with other parties, so that they can gather enough support to get their most salient policies passed. However, searching for an optimal position in a logrolling process requires 'huge cognitive and informational challenges to negotiators' (de Marchi and Laver forthcoming, p. 41) and it delays the policy process. As such, increased opportunities for policy trades increase bargaining costs. Thus, various theories seem to suggest that, when a regime liberalizes, the diverse political stances and socioeconomic backgrounds of the legislature increase bargaining costs. It inevitably deters autocrats from producing more policies.

As agenda space and policy outputs are more constrained, autocrats have less room to adjust their policy portfolio. As a result, they have to focus on fewer policy issues and thus the issue diversity of the policy agenda shrinks. In brief, a greater number of political parties increases bargaining costs, and therefore the government will find it more difficult to produce more policies to address a wider variety of issues.

2.2 | Information exchange process

Information is valuable for policy-making (Alexander et al. 2011). The diversity of information matters to good policy outcomes because diversity leads to different competing and debatable perspectives (Schattschneider 1960), through which a more competitive and convincing solution is more likely to be adopted to drive the society forward (Page 2008). The information exchange process states that a greater number of political parties provide more information for policy-making and thus increase the issue diversity of the policy agenda in liberalizing authoritarian regimes.

Compared to democracies, autocrats have far less access to information due to the systematic constraints of their politically illiberal environment (Chan and Zhao 2016; Wallace 2016). For instance, in the absence of a genuine election, autocrats have incentives to pay attention to a few powerful elites (the selectorate) only (Bueno de Mesquita et al. 2003; Manion 2017). The selectorate has a more homogenous interest than the public. The selectorate theory implies that information exchange is limited in authoritarian regimes.

In addition, in order to maintain regime stability, autocrats suppress information by repressing the media (Stockmann and Gallagher 2011) and social contentions (Fu 2017). Ironically, however, as the media and public

express less about their concerns and discontents, the autocrats receive less policy-relevant information and are more reluctant to make policy change (Chan and Zhao 2016).

To minimize unfavourable outcomes due to the lack of supply of policy-relevant information, some autocrats seek independent, credible and diversified information sources that can improve their policy-making and governance (Dickson 2016). That requires the liberalization of the information environment and allowing truly independent information and opinions to flow relatively freely within the region. For instance, Egorov et al. (2009) found that autocrats in countries with poorer natural resources tend to liberalize the media environment so that the autocrats and the bureaucrats can receive an independent source of information from a free media. Alternatively, autocrats obtain key and diverse information for policy-making through the establishment of elections, legislatures and other forms of consultative institutions that are not normally achieved without liberalizing the regime to some degree (Miller 2015; Truex 2016).

When regimes liberalize, the number of political parties increases. As such, autocrats receive more policy-relevant information from these parties. The first notable explanation is the representation of interests. A greater number of elected lawmakers from different political parties in an authoritarian legislature represent more diverse constituencies. Motivated by the incentive of re-election, elected political parties in authoritarian legislatures are more likely to represent the interests and expectations of their constituencies (Truex 2016; Manion 2017). If autocrats propose policies that could harm the interests of members of the constituencies, their representatives are likely to speak up, ask for major amendments or reject these policy proposals in order to protect their interests. Therefore, driven by representation of more diverse constituencies, autocrats' issue diversity of the policy agenda is likely to increase.

The second explanation is that a greater number of political parties brings in more diverse political stances and socioeconomic backgrounds. These wider backgrounds lead to the production of a more diverse policy agenda and vice versa. For example, Greene and O'Brien (2016) found that more female lawmakers in the legislature would lead to a greater issue diversity of the policy agenda and more left-leaning policies. Tam (2017) found that female lawmakers and liberal lawmakers are more likely to represent women's interests in an authoritarian regime. Political parties from more diverse socioeconomic backgrounds, political ideologies and experiences provide more diverse information to policy-makers, and thus government produces policies that address a wider spread of issues (i.e., a more diverse policy agenda).

The third explanation is about problem definition (Kingdon 1984). Because of electoral incentives, a greater number of political parties are more likely to present and advocate their problems to the policy-makers. For example, political parties in the labour sectors are more likely to voice problems related to employment, working conditions and labour welfare. Yet, the more problems the policy-makers consider, the more problems they will discover (Baumgartner and Jones 2015, pt. 1), and therefore the autocrats end up having to deal with a wider range of issues. The government thus has to seek opinions and solutions on more diverse issues from different government agencies (Alexander et al. 2011), consultative committees and experts (e.g., scientists and economists) (Wilkinson et al. 2010). Because of greater freedom of speech and association, independent think tanks, non-governmental organizations, the media and citizens also have greater freedom and capacity to generate more policy-relevant reports to evaluate and monitor the government's performance and identify policy problems.

In this way, autocrats face an increased quantity of information and informational diversity as the regimes liberalize. This, in theory, should result in a more diverse policy agenda with the attention of government having to be spread across a wider range of policy areas. It contradicts the bargaining perspective and results in a greater issue diversity of the policy agenda.

2.3 | A hybrid theory

This article argues that the effects of the two competing processes—the bargaining process and information exchange process—on the issue diversity of the policy agenda are not mutually exclusive. The two effects could have different degrees of impact when the partisan composition of the legislature varies. Before the start of political

liberalization, a single political party (or single-party dominant system) in authoritarian regimes provides a narrower scope of policy-relevant information to the government. The level of issue diversity of the policy agenda is thus lower. As regimes liberalize, the political systems change from a single-party system to a multi-party system. The level of information exchange thus increases. In this process, governments benefit from receiving a greater amount of policy-relevant information from a wider range of perspectives and political ideologies. This pushes governments to allocate attention to a wider range of policy issues. However, one additional political party provides less new information as the total number of political parties increases. As a result, the marginal benefit of information exchange would be smaller when the number of political parties increases.

On the other hand, the increasing number of political parties increases the marginal bargaining cost—more parties involved would make the bargaining process more difficult—and as dictated by the bargaining hypothesis, it reduces the issue diversity of the policy agenda. As the marginal effect of information exchange diminishes and the marginal effect of the bargaining cost magnifies, it is expected that the two effects cancel each other out and reach an equilibrium point, thus resulting in a maximum level of issue diversity of the policy agenda.

Beyond the equilibrium, the marginal bargaining cost outweighs the marginal benefit of the information exchange. A very large number of political parties increases bargaining costs and thus reduces the number of policies produced. Lower policy outputs constrain the total size of the policy agenda space. Because of the confined agenda space, governments have to be strategic in the allocation of their political attention, and prioritize a narrower scope of policies (Jennings et al. 2011). Thus, the issue diversity of the policy agenda declines as the number of political parties further increases. Therefore, by combining the insights of information exchange and bargaining cost perspectives, a hybrid model of the two countervailing processes predicts a negative quadratic (inverted-U) relationship between the number of political parties and the issue diversity of the policy agenda. The hypothesis, therefore, states that:

> H_1 (hybrid hypothesis): There is a negative quadratic (inverted-U) relationship between the number of political parties and the issue diversity of the policy agenda.

3 | POLICY-MAKING AND POLITICAL LIBERALIZATION IN HONG KONG

In Hong Kong, making law requires support from a simple majority in the legislature. Over the horizon of this study, the Hong Kong government mostly dominated the lawmaking process (Lam 2005). However, the process of political liberalization created an interesting dynamic in the lawmaking process in Hong Kong.

Under British rule before 1997, the Hong Kong government 'was effectively dictatorial, enabling the [G]overnor to exercise absolute control over the legislature' (Lam and Chan 2015, p. 553). The executive (called the Governor under British rule) had the power to appoint all lawmakers to LegCo—including the official members (i.e., the senior officials of the government) and unofficial members (i.e., business and social elites). As such, the members of LegCo were regarded as 'yes-men' (Miners 1994, p. 224), which suggests the legislature as a rubber stamping exercise and the political information presented to the government was not very diverse. While different opinions existed in the assembly, the Hong Kong government was never publicly seen to be defeated before 1985, because the Governor could instruct the official members to abstain from voting (Miners 1994, p. 226). Before 1985, LegCo was basically controlled by the government and the bargaining process was smooth.

In 1985, elections were introduced in Hong Kong, consisting of functional constituencies—the professional and business interests—and the electoral college—elected by members of municipal and district councils who are directly elected by the public. These non-directly elected members, accounting for over 40 per cent of all lawmakers in the LegCo between 1985 and 1991, joined the appointed members to scrutinize government bills. The electoral change also altered the composition of the legislature. Although lawmakers were observed to be more active in terms of speech and questions, there were only minor amendments and clarifications in the contents of the bills (Miners 1994, p. 230).
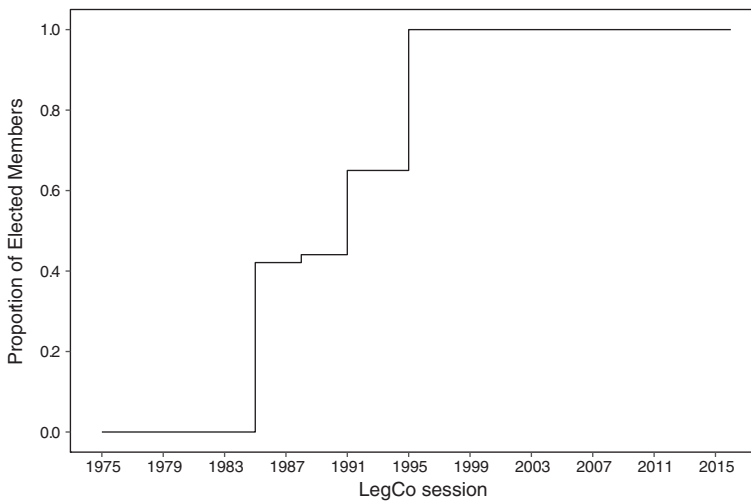
FIGURE 1 Degree of political liberalization as the proportion of elected members in the Hong Kong Legislative Council from 1975 to 2016

The first direct elections took place in 1991. The electoral college was abolished in the same year and replaced by geographical constituencies by direct election by the public. The proportion of elected members (versus appointed members) then increased to over 60 per cent from 1991. In 1995, appointed seats in LegCo were totally abolished and all members of LegCo were then directly elected by the electorates either in functional constituencies or geographical constituencies from 1995 onwards.[1] The system remains the same today. To summarize the regime change between 1975 and 2016, Figure 1 represents the degree of political liberalization of Hong Kong as reflected by the proportion of elected members (versus appointed members) in LegCo.

After the introduction of direct elections, lawmakers became more active inside and outsides the legislature. As mentioned, lawmakers questioned the government and proposed bills more frequently (Gu 2015). Some lawmakers, particularly the political opposition, were also active participants in various street demonstrations and protests (Ma 2007). These represented more diverse political and policy signals available to the government. The lawmaking process, after the introduction of direct elections, was still dominated by the government (Lam 2005). However, the government also faced unprecedented challenges. The national security legislation in 2003 presented a classic case study of how the Hong Kong government lost control of the lawmaking process. Ma (2005) argues that the mass protest against the national security legislation created an internal split between the governing elites as they feared subsequent defeats in the next election. Tam (2017) found that the introduction of elections increases the number of female lawmakers in LegCo and they are more vocal on women's interests. As such, in line with the hybrid theory, the introduction of elections changed the behaviour of lawmakers and thus increased information exchange as well as bargaining costs in the lawmaking process.

4 | DATA

4.1 | Hong Kong's legislative bills

The unique case of Hong Kong offers a theoretically valuable contribution to the understanding of policy-making during a period of political liberalization. There are a number of reasons for this. First, Hong Kong's gradual, and often embattled,

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[1]Even though both functional constituencies and geographical constituencies are directly elected by the electorates. The formation of electorates in these two constituencies is very different. As mentioned, electorates in geographical constituencies are the citizens in the corresponding geographical area with each person casting one vote. In functional constituencies, electorates vary and are decided by the sectorial interests. Some electorates are individuals (e.g., social workers and teachers). Some other electorates are corporates (e.g., insurance and accounting).

political liberalization process started in 1985 and is still ongoing (Ma 2007). The lengthy process of political liberalization allows political scientists to observe its dynamics and effects in greater detail than a sharp transition that occurred in other cases such as the Czech Republic after the Velvet Revolution and the Spain transition in the late 1970s.

Second, Baumgartner et al. (2017) have expressed concern over the data quality and accuracy of the reported budgetary data in authoritarian regimes because autocrats may falsify the budgets. The use of bill data could raise similar concerns. However, the legislature and lawmaking process in authoritarian regimes are usually under the spotlight and thus are more transparent. Unlike budgetary data, the legislature has less incentive to hide the introduction of a certain bill or distort its details. Also, Hong Kong LegCo's legislative activities are well documented and recorded by the authority. This provides high-quality and reliable data for systematic examination.

Third, unlike many authoritarian regimes, Hong Kong has experienced a long period of press freedom and civil liberty since the colonial era. This provides more open and transparent information for rulers to make policies compared with many other autocrats. The implication is that the level of information supply from the press and civil society is highly stable over the period of study. As such, an advantage of studying the case of Hong Kong is that one can focus only on the change of information provision as observed from the liberalization of the political systems, while avoiding the confounding effect of information provision from the liberalizing media and civil society that are likely to be observed in other liberalizing regimes.

For all these reasons, Hong Kong is a unique and important case for examining the effect of political liberalization in a setting with a high level of information supply from the media and civil society during the period under consideration.

To test the hypothesis, this article uses a novel dataset of Hong Kong's legislative bills between August 1975 and July 2016, in which Hong Kong had experienced a gradual process of political liberalization from 1985. The novel dataset of legislative bills was scraped from the LegCo website http://legco.gov.hk/ under the Bill Database section. The total number of bills scraped was 2,645 during that period. The website contains both English and Chinese versions of the bills with the key information such as the bill title, first to third reading dates and the proposer of the bill. The bill dataset was scraped and processed in R on 4 October 2016 (for web scraping using R, see Munzert et al. (2014)). In principle, all URLs of the bills were obtained first. With a full list of URLs, all bill information was retrieved and assembled into a long data format. The whole process takes about one hour on a normal laptop with normal internet speed.

The policy contents of the legislative bills are coded according to the policy content coding system of the Comparative Agendas Project (CAP)[2] www.comparativeagendas.net with slight revisions to adapt to the unique context of Hong Kong. The original CAP coding system contains 21 major areas of public policy (e.g., health, energy, transport) and has been applied to 23 national, supranational and subnational states such as the US, the UK, Canada, Italy, Belgium, the Netherlands and Hong Kong. Hong Kong experienced a sovereignty transfer from the UK to China in 1997. Therefore, following Lam and Chan's (2015) codebook, topic number 32 'Relationship with the sovereign and related constitutional matters' is created to record any legislative bills that are related to the adaptation of colonial laws to the Basic Law. As such, the coding system for Hong Kong legislative bills contains 22 major topics instead of 21 topics in CAP. Table 1 lists the 22 policy areas and the corresponding number of laws in each policy area between 1975 and 2016.

4.2 | Issue diversity of the policy agenda

The concept of the issue diversity of the policy agenda is operationalized as the distribution of policy output across policy topics. Following the recommendation by Boydstun et al. (2014), this study uses Shannon's H to measure issue diversity, which is defined as:

$$Issue\ Diversity = -\sum (p(x_i)) \times \ln(p(x_i))$$

Topic number	Topic names	Number of laws
1	Macroeconomics	314
2	Civil rights	22
3	Health	161
4	Agriculture	30
5	Labour	177
6	Education	78
7	Environment	71
8	Energy	14
9	Immigration	60
10	Transportation	237
12	Law and crime	448
13	Social welfare	57
14	Housing	109
15	Domestic commerce	390
16	Defence	9
17	Technology	49
18	Foreign trade	69
19	International affairs	9
20	Government operations	196
21	Public land	67
23	Culture	8
32	Sovereignty and constitutional affairs	70

TABLE 1 Comparative Agendas Project codebook major topics and the number of laws between 1975 and 2016

where x_i represents a policy topic. $p(x_i)$ is the proportion of total bills in policy topic x_i. And $\ln(p(x_i))$ is the natural log of $p(x_i)$. A greater value of Shannon's H represents a greater issue diversity, and vice versa. Between 1975 and 2016, the mean value of issue diversity is 2.3300. The standard deviation is 0.1902.

4.3 | Effective number of political parties

The number of political parties is measured by Laakso and Taagepera's (1979) effective number of political parties (ENPP) and the incomplete data are adjusted according to Taagepera (1997). The ENPP represents the total number of influential political parties as measured by either vote share or seat share in a legislature. It is also a common measurement of party fragmentation in the political science literature (e.g., Grofman and Kline 2012; Maeda 2015). ENPP represents the number of sizeable political parties in the legislature and is a good indication of the partisan composition of the legislature. When the ENPP equals about one, the political system is typically labelled a one-party system or one-party-dominant system (e.g., mainland China and Singapore). By the same token, when the ENPP equals about two, it means that two comparable parties exist and compete in the political system (e.g., the US and the UK). Greater ENPP implies more equally sizeable political parties participate in the political system.

Figure 2 shows the adjusted and unadjusted ENPP between 1975 and 2016. The dashed line and dotted line represent the upper and lower bounds of the ENPP by assuming that political parties or candidates that are coded as 'others' or 'no political affiliation' demonstrate extreme fragmentation and extreme united, respectively. The solid line represents the adjusted value of the ENPP based on the rules mentioned according to the ideology of political parties or candidates that are coded as 'others' or 'no political affiliation'.
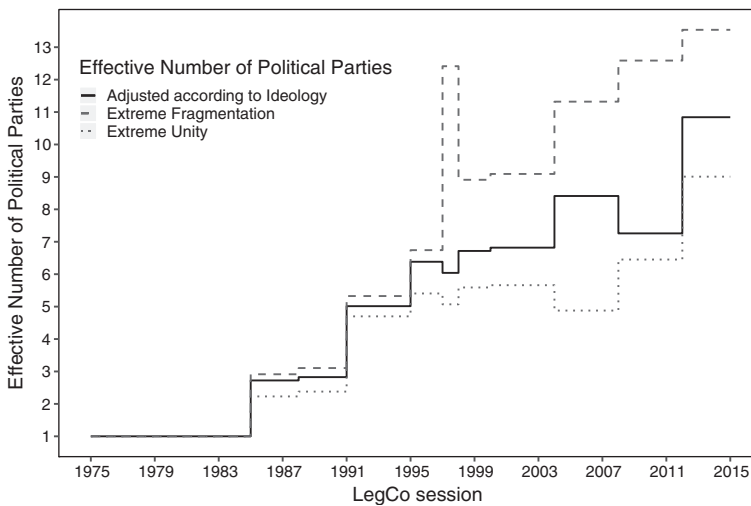
FIGURE 2 The number of political parties as measured by the effective number of political parties (ENPP) between 1975 and 2016. The dashed line and dotted line represent the upper and lower bounds of ENPP by assuming political parties or candidates that are coded as 'others' or 'no political affiliation' demonstrate extreme fragmentation and extreme united, respectively. The solid line represents the adjusted value according to the ideology of political parties or candidates that are coded as 'others' or 'no political affiliation'

After adjustment, in general, the ENPP of Hong Kong LegCo goes up over time. It was at 1 from 1975 to 1985 because all lawmakers were appointed. When indirect elections were introduced subsequently, the ENPP went up to about 2.72 from 1985 and 2.83 from 1988. When direct elections were introduced in 1991, the ENPP jumped to 5.01 and further jumped to over 6 from 1995. Between 2004 and 2008, it further increased to 8.41. It decreased to 7.26 between 2008 and 2012 and jumped to 10.84 from 2012 to 2016. Between 1975 and 2016, the mean value of the effective number of political parties is 5.1769. The standard deviation is 3.2244.

5 | RESULTS

How do autocrats allocate their attention and how does the issue diversity of the policy agenda change over time during a period of political liberalization? This article answers these questions by using the time-series data of LegCo's legislative bills between 1975 and 2016. The issue diversity of the policy agenda is measured by Shannon's H as recommended by Boydstun et al. (2014). When the score of issue diversity of the policy agenda is zero, it means that attention is concentrated on a single topic out of the 22 possible topics. The maximum score of the issue diversity across twenty-two possible policy topic is ln(22) = 3.0910. Different values of issue diversity show the variation in attention to a range of possible policy topics over time. This section first provides graphical inspection and later conducts a more rigorous time-series analysis.

Figure 3 shows the relationship between the number of political parties and the issue diversity of the policy agenda. This figure shows a marginal upward trend in issue diversity when the number of political parties was smaller than three (in and before 1990). When the number of political parties is greater than three (after 1990), any additional increase in the number of political parties reduces the issue diversity of the policy agenda. The general pattern is a negative quadratic relationship and can be fitted in an inverted-U curve as shown in Figure 3. It provides support to H_1.
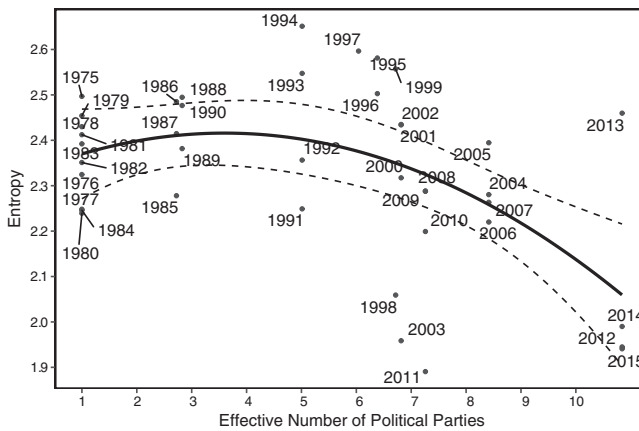
FIGURE 3 A negative quadratic (inverted-U) relationship between issue diversity and the number of political parties

5.1 | Time series regression analysis

To conduct a more rigorous test of H_1 with time-series data, an autoregressive distributed-lag (ADL) model is applied. The merit of the ADL model is that it can account for the autoregressive effect of the lagged values of the dependent variable commonly presented in time-series data. A full model for this research is represented in the following form:

$$Y_t = \alpha_0 + \alpha_1 Y_{t-1} + \beta_1 X_t + \beta_2 X_t^2 + \beta_3 C_t + \epsilon_t$$

where issue diversity of the policy agenda Y_t is a function of a linear combination of a constant term α_0, the past values of issue diversity of the policy agenda Y_{t-1}, the number of political parties X_t and its squared term X_t^2, and the number of laws C_t as a control variable. ϵ_t is a random shock.

As mentioned, issue diversity is measured by the entropy of policy areas, and the number of political parties is measured by the effective number of political parties. To support H_1, it is expected that a negative quadratic relationship exists between the number of political parties and the issue diversity of the policy agenda. Therefore, β_1 is expected to be positive, and β_2 is expected to be negative. For the control variable, it is expected that a greater number of laws would allow the governments to diversify the policy outputs than a lower number of laws. In addition, when a government faces more pressing problems (e.g., economic crisis), they are also more likely to focus on fewer issues. Therefore, the economy is also controlled in this model and it is measured by the GDP per capita released by Hong Kong's Census and Statistics Department. Hellwig (2012) and Bevan and Greene (2018) found that the effect of the economy is conditional on party transition. This study uses the number of years after the personnel change in LegCo to replace the party transition because there were no elections but only personnel change by appointment between 1975 and 1985. The Governors increased the size of LegCo in 1976, 1980, 1983 and 1984, before the elections started in 1985. The interaction between the economy and the years after the personnel change is also included as a control variable. An augmented Dickey-Fuller test shows that co-integration does not exist and thus the autoregressive distributed-lag model is appropriate.

Table 2 shows the results of the time-series analysis with different autoregressive distributed-lag models based on the full model described above. Models 1 and 2 are the linear models of the number of political parties. Model 2 further adds the number of laws and the interaction between the economy and years after personnel change as a control variable. Models 3 to 5 are non-linear models with the squared term of the number of political parties. Model 4 added the number of laws as control and model 5 is the full model described in the formula.

TABLE 2 Time-series autoregressive distributed-lag model of issue diversity of the policy agenda

	Issue diversity of the policy agenda				
	(1)	(2)	(3)	(4)	(5)
Issue diversity (lag 1)	0.165	0.049	−0.033	−0.123	−0.092
	(0.208)	(0.207)	(0.186)	(0.177)	(0.194)
Number of political parties	−0.019*	−0.009	0.056†	0.061*	0.068†
	(0.009)	(0.015)	(0.032)	(0.030)	(0.040)
Number of political parties (squared)			−0.007*	−0.007*	−0.007†
			(0.003)	(0.003)	(0.004)
Number of laws		0.002		0.002	0.002
		(0.002)		(0.002)	(0.002)
Economy		−0.006			−0.001
		(0.008)			(0.008)
Years after seat change		−0.029			−0.034
		(0.049)			(0.045)
Economy × Years after seat change		0.004			0.004
		(0.003)			(0.003)
Constant	2.039***	2.177***	2.388***	2.412***	2.369***
	(0.502)	(0.486)	(0.442)	(0.453)	(0.438)
N	40	40	40	40	40
R^2	0.164	0.281	0.272	0.332	0.362
Adjusted R^2	0.119	0.151	0.211	0.255	0.222

Note: Entries represent unstandardized coefficients with robust standard errors in parentheses.
Significance levels: ***$p < .001$, **$p < .01$, *$p < .05$, †$p < .1$.

Models 1 and 2 test the linear effect of the number of political parties on issue diversity of the policy agenda. The linear term of the number of political parties is significant ($\beta_1 = -0.019$, $p < .05$) and is negatively associated with the issue diversity of the policy agenda. However, after controlling for the number of laws, the economy and the years after the personnel change, model 2 shows that the linear term of the number of political parties is not significant at all conventional level of significance. It clearly shows that a greater number of political parties has no linear effect on the issue diversity of the policy agenda in the presence of control variables.

Models 3 to 5 test the non-linear effect of the number of political parties on the issue diversity of the policy agenda. Model 3 shows that the negative quadratic effect is significant ($\beta_1 = .056$, $p < .1$ and $\beta_2 = -.007$, $p < .05$). Model 4, after controlling for the effect of the number of laws, shows that the negative quadratic effect is also significant ($\beta_1 = .061$, $p < .05$ and $\beta_2 = -.007$, $p < .05$). Model 5 shows the negative quadratic relationship is still robust but is only significant at the 10 per cent level of significance ($\beta_1 = .068$, $p < .1$ and $\beta_2 = -.007$, $p < .1$), after controlling for the effects of the number of laws, the economy and years after personnel change. It provides strong evidence to support H_1: there is a negative quadratic relationship between the number of political parties and the issue diversity of the policy agenda. Using the Akaike information criterion (AIC) and Bayesian information criterion (BIC), the results show that model 5 has the lowest value of AIC and BIC compared to the other four models. Thus, model 5 should be selected.

Figure 4 shows the marginal-effect plot of model 5 and provides graphical evidence to support the hypothesis. It shows the marginal effect of the number of political parties, as a quadratic polynomial, on the issue diversity of the policy agenda, after controlling for the number of laws, economy and years after personnel change. It represents
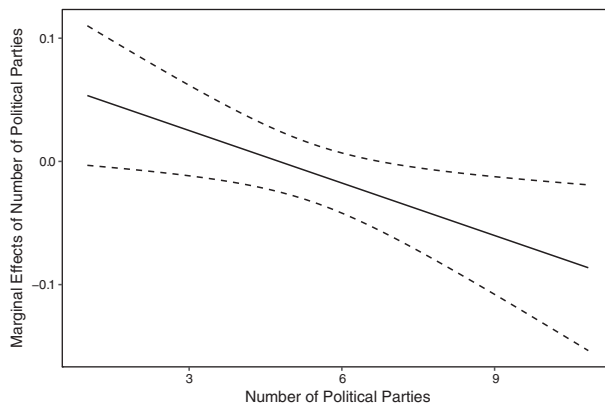
FIGURE 4 Marginal effects of the number of political parties at the 90 per cent confidence interval

how each unit change in the number of political parties has different effects on the issue diversity of the policy agenda. Figure 4 shows a negative slope and the marginal effect declines as the number of political parties increases. The marginal effect is positive when the number of political parties is less than 4.5 and is negative beyond that point. It means that issue diversity expands when the number of political parties is less than 4.5 and shrinks when it is greater than 4.5. This again provides clear evidence to show a negative quadratic relationship between the number of political parties and the issue diversity of the policy agenda as stated in H_1. The marginal benefit of information exchange diminishes, and the marginal bargaining costs magnify as the number of the political parties increases in liberalizing regimes.

6 | DISCUSSION AND CONCLUSION

How autocrats allocate their political attention and change the issue diversity of the policy agenda during a period of gradual political liberalization is a fundamental and important question in the study of public administration and policy. Extant studies on the issue diversity of the policy agenda focus on advanced democracies (Jennings et al. 2011; Greene 2016). The effect of regime transition is understudied. Similarly, the Comparative Agendas Project (CAP) is mostly featured in advanced democracies such as the US, the UK, Germany, Italy, and Canada. There are, however, only a few studies that examine policy agendas in non-democratic regimes (Lam and Chan 2015; Chan and Zhao 2016; Baumgartner et al. 2017; Sebők and Berki 2018). Baumgartner et al. (2017) have recently called for more studies to examine authoritarian regimes using the CAP coding system. This research responds to this gap by taking advantage of Hong Kong's unique path of prolonged democratization, in which Hong Kong offers an important opportunity to observe the effect of political liberalization on the issue diversity of the policy agenda. In addition, this study is also the first of its kind to use legislative bills to study autocratic policy-making while the existing studies primarily use budget data. As such, it contributes to the comparative studies of policy agendas and extends the CAP coding systems to more non-democratic systems.

The main contribution of this study is to provide a refined way of thinking by theorizing and examining a new hybrid model. It challenges the perspective offered by Lam and Chan (2015), Baumgartner et al. (2017) and Sebők and Berki (2018) that puts the bargaining and information exchange processes as competing processes. By drawing theories in regime transition, party politics and public policy (Mayhew 1991; Bueno de Mesquita et al. 2003; Cox and McCubbins 2005; Wahman 2011; Baumgartner et al. 2013; Eguia and Shepsle 2015; de Marchi and Laver forthcoming), it advances our understanding of how the regime transition and the corresponding change in partisan composition of the legislature influence the issue diversity of the policy agenda. It highlights how bargaining and

information exchange are complementary to each other during a period of political liberalization. As regimes liberalize, the number of political parties in the legislature increases and it changes the partisan composition of the legislature. The change in electoral systems and the corresponding changes in the partisan composition of the legislature represent the duality of bargaining and information exchange processes—they are both the source of bargaining and the source of information exchange. The increased number of political parties, in turn increases both the level of information exchange and the bargaining costs for policy-making. The hybrid theory argues that, in liberalizing regimes, an increase in the number of political parties diminishes the marginal benefit of the information exchange supplied by the lawmakers but at the same time magnifies the marginal bargaining costs. As such, as regime liberalizes, an increase in the number of political parties has a negative quadratic (inverted-U) relationship with the issue diversity of the policy agenda.

Analysing a unique and novel time-series dataset of legislative bills from Hong Kong's LegCo, the findings give unambiguous support to the hybrid theory—as the regime liberalizes, an increase in the number of political parties has a negative quadratic (inverted-U) relationship with the issue diversity of the policy agenda (H_1), after controlling for the effects of the number of laws, the economy and the years after personnel change in LegCo. The empirical evidence shows that the two competing processes—information exchange and bargaining—take place together at different rates as the number of political parties varies. A small but increasing number of political parties, as seen from the initial liberalizing period 1975 to 1995, increases the issue diversity of the policy agenda. A large but increasing number of political parties in the subsequent period shrinks the issue diversity of the policy agenda. The novel dataset will facilitate more future comparative studies.

Future research related to the debate on the policy agenda and comparative public policy needs to put the hybrid theory and the empirical findings presented here in a broader context. The bargaining and information exchange processes in policy-making have to be properly addressed. This study offers important theoretical and empirical insights to future comparative studies that examine the effect of political liberalization on a greater scale. The extension of the CAP coding systems to more non-democratic countries will offer a promising research agenda.

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