Research Statement

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I conduct research in two areas: media economics and organizational economics. In media economics, I focus on the underexplored subject of the media in autocracies, particularly to understand the limits of government monopoly of the media, and why autocracies such as China choose to allow some vestiges of a free media. In organizational economics, I study how the organization of firms affects the behavior of employees, particularly in knowledge intensive industries where the flow of information is important for production. My research is theoretically based but typically involves the creation of new data sets, employment of textual data, and use of new methods for analyzing big data.

Part I. Media Control in Autocracies

Free information flow is essential for organizing economic activities and holding political leaders accountable. In well-functioning democracies, it is promoted by a free media market. In contrast, autocratic governments typically monopolize the media in order to strictly control the information flow. Historically, absolute monopoly of the media and extreme distortion of information has caused problems for autocracies (e.g. USSR, North Korea, China under Mao) by paralyzing economic coordination and innovation and blinding political leaders to government wrongdoing and public sentiment on key issues. Modern autocracies, most notably China, seem to chart a different path by tightly controlling certain limited types of information while at the same time allowing a competitive media market in other types of information. Although ranked among the countries with the lowest degree of press freedom, China has the largest newspaper market and one of the most dynamic internet markets. The China model may be emulated by other autocracies and even challenge democracy. It becomes crucial to understand the Chinese government’s media control strategy and the limits of such strategy. My research provides some of the first large-scale evidence to open the black box of the media in China and further identifies various costs of information control in autocracies.

One important question regarding the media in autocracies is the possibility for an autocracy to have a media market that allowed significant amounts of information flow without impairing the autocrat’s political goals. In other words, can media prosperity be achieved without political freedom? This question is addressed in “Media Bias in China” (AER 2018, [35]) with Qin and Strömberg. Given an autocrat’s incentive to disseminate propaganda and suppress negative information, we of course expect significant media bias in the state-controlled media. However, the ability of the Chinese central government to control media is not absolute because most media outlets are owned by local governments. If readers dislike media bias (e.g., propaganda) and local governments desire economic benefits (e.g., advertising revenues), local media will produce less-biased content. Market competition further drives local media to cater to audiences’ preferences and thus lessens the political influence. Such an argument, reflected in my olden-day journalism thinking, is only partially true. A “smart” government can use political strategies to separate economic forces from political influence. For instance, a government can regulate the media by producing all political content through strictly-controlled Party papers and allowing all commercial content (e.g., entertainment) to be provided by the market. This strategy is observed in many Chinese newspaper markets. Thus, it is unclear whether there is a politico-economic tradeoff in the production of media bias and whether market competition reduces this bias. Our research answers these two questions with two major innovations. First, we construct a novel measure of media bias to quantify the economic costs of producing media bias. Particularly, we measure media bias based on a newspaper’s coverage of
propaganda relative to entertainment. We show that within the same newspaper market and year, a one-standard-deviation increase in our bias measure is associated with a 33 percent fall in advertising revenues. Second, concerning the identification of causal effects, we exploit a drastic reform in which the Chinese central government closed most county-level papers in 2003 for reasons that were exogenous to the newspapers’ decisions. We find that closing these lower-level papers significantly increased the bias of Party papers and reduced the bias of commercial papers owned by higher-level governments. This finding shows that reducing competition from lower-level governments helps upper-level governments achieve their political goals, or conversely, increasing competition from bottom-up hinders upper-level governments from achieving their goals. Our overall findings demonstrate that economic prosperity of the media cannot be achieved without impairing autocrats’ political goals, and that competition between local governments erodes autocrats’ political control.

An important concern about media control in autocracies is how central authorities allow individual journalists to discover news that helps improve local accountability without losing control over their reporting behavior. It is extremely difficult to study this sort of organizational problem because of data limitations. In “Authority, Incentives, and Performance: Evidence from a Chinese Newspaper” (REStats 2017, [38]), I was able to obtain detailed information on the organization and work activities at a major Chinese newspaper over the period of 2004-2006. Crucially, the newspaper did a major reorganization, tightening the control of editorial decisions in some divisions but not others, which provided, in effect, a treatment and control group. The main finding is that after tightened editorial control, reporters produced more investigative reports on local issues and less company-favoritism content, a source of private benefits and income compensation. This finding suggests that controlling media at the micro level incurs the costs of monitoring journalistic activities and providing incentives for participation.

The above two papers focus on the economic costs of suppressing information flows. Another cost concerns the lack of political accountability due to the lack of bottom-up communication. When “big brother” is watching, people will not tell the truth. Without truthful communication, political information that is important for monitoring local officials and gauging public sentiment cannot be generated. Many autocrats try to build their own systems to collect this political information. However, such internal information systems rarely succeed because their secrecy creates the “who monitors the monitor” problem. Mass media can avoid this problem by providing information publicly. Therefore, autocrats may allow for a relatively free media to acquire and transmit political information from bottom-up. Then, a trade-off arises: the utilization of information that helps improve political accountability vs. the spread of information that may affect regime stability. Together with Qin and Strömberg, I document this tradeoff in the context of Chinese social media. Our study is based on a unique textual dataset of 13.2 billion social media posts published on the largest Chinese microblogging platform (Sina Weibo), and a manually-collected dataset of thousands of political events including protests, strikes, and corruption during the period of 2009-2013. In “Why Does China Allow for Freer Social Media?” (JEP 2017, [34]), we systematically document the Chinese government’s strategic use of social media for surveillance and propaganda. We find that (1) a large amount of content regarding sensitive political issues was circulated on Sina Weibo without being deleted, (2) protests and strikes can be predicted by social media content one day in advance with excellent accuracy and that corruption charges can also be predicted, albeit less accurately, months before government action, and (3) social media is used extensively by government agencies to spread propaganda. These findings show that social media, although unattractive as a potential outlet for organized collective action, is useful for autocratic governments to surveil protests, monitor local officials, and disseminate propaganda.
The above study raises a critical question: with an information technology that enables rapid transmission of massive amounts of information, will information flow beyond the control of autocratic governments and lead to large-scale social movements? We address this question in “Social Media and Protests in China.” In particular, we examine whether and how information flow in Chinese social media affects the organization of collective action events such as strikes and protests in China. Using a difference-in-differences estimation, we find that the penetration of Sina Weibo significantly increased the incidence of strikes and protests. Moreover, we find that the amount of information communicated with locations in which an event occurs recently increased the probability for a location to have incidence of similar events. These findings suggest that in autocracies, to the extent that the government uses social media for surveillance and intelligence, social media facilitate the organization of collective action events.

My research involves the use of machine learning techniques to classify textual messages. Most existing classification algorithms are based on an objective that minimizes a weighted sum of two conflicting types of errors (false positive and false negative). The underlying assumption of these algorithms is that the observed data (for training) can be mapped to the population. However, this assumption does not hold in the case of classifying Chinese media content when the observable data are distorted due to censorship and information inflation (propaganda). Together with the data scientists, Tong, Xia, and Zhao, I formulate the problem of text classification in the presence of data distortion and propose a new classification approach that allows for intentional control of the more-important type of error. This is the paper “Intentional Control of Type I Error over Unconscious Data Distortion.” The method, together with ready-to-use software, can be applied to a wide range of social studies.

My research on the media in China significantly contributes to the growing literature on media bias ([8], [9], [14], [18], [19], [20], [21], [22], [32], [33]), the study of media control in autocracies ([4], [11], [12], [25], [26], [28]), and the political effect of social media in non-democratic countries ([1], [7], [13]). My future research will continue this path to investigate the effects of information control on government accountability, firm performance, and market developments. Another strand of research is to study how hierarchical structure affects the costs of information control and the control strategy itself.

Part II. Incentive Provision in Knowledge-intensive Production

My media research aims to document basic facts and identify broad mechanisms because the study of the media in autocracies is still in a nascent stage. Conversely, in the well-established area of organizational economics, I aim to use rigorous empirical methodology to test important economic theories. The main contribution of my research lies in the assembling of original data that allows for a close mapping between empirics and theory, and the use of creative identification strategies to draw causal inference. In terms of subject matter, my research mostly examines worker incentives and performance in knowledge-intensive production. Some of this work overlaps with my research on media economics.

One fundamental problem in knowledge-intensive production is how to utilize the knowledge of key individuals in the organization. One solution is delegation of decision making, which motivates workers to collect more information for production but may cause a loss of control when they select projects in their own interests ([2], [10]). I provide some of the first rigorous empirical tests of this theoretical insight in “Authority, Incentives, and Performance” (RESTat 2017, [38]), which was also discussed above as a media paper. I examine how journalists responded to a change in authority that transferred the right of making editorial decisions from midlevel editors to top editors within a Chinese newspaper. I find that
authority change (1) decreased midlevel editors’ efforts to initiate in-depth reports and (2) improved reporters’ performance while reducing their activities for private gain. The first finding shows a cost of centralizing authority (or the benefit of delegation) due to depressing worker initiative, confirming the theory under test. The second finding points to a cost of delegation due to workers’ engagement in private activities that are detrimental to the organization, which is inconsistent with the theory. These findings help discriminate between different mechanisms that underlie the decision of delegation.

Economists have long considered market competition as an alternative to the internal provision of incentives to elicit worker effort and mitigate organizational slack ([5], [6], [23], [24], [27], [29], [36]). This consideration is particularly relevant to today’s creative industries, in which digitalization and the emergence of platforms substantially reduce barriers to entry and thus greatly fuel market competition among producers. Unpacking how competition affects worker effort and performance in creative production is important for understanding the growth of the creative industries as well as the development of grass-root entrepreneurship and the productive efficiency of the rapidly growing freelancing economy. In “Competition, Contracts, and Creativity: Evidence from Novel Writing in a Platform Market” with Zhu, we examine the effects of competition on author effort and performance under two different incentive structures in a Chinese online-novel platform market. Authors sign fixed-price (paid-by-the-word) or revenue-sharing contracts with the platform to produce and sell their works chapter-by-chapter. We exploit an anti-pornography regulatory change that increased the entry of romance novels – but not other genres – to find that intensified competition on average led authors to produce content faster while the effect on book novelty was weak. However, revenue-sharing books responded substantially more than pay-by-the-word books, particularly regarding novelty. Finally, the platform increased promotion of contracted books, and this increase disproportionately favored pay-by-the-word books, leading them to outperform the revenue-sharing books in terms of reader clicks and purchases. These findings demonstrate that the effect of market competition on individual effort is constrained by the structure of incentives provided within an organizational relationship. One implication is that competition and entrepreneurship should go hand-in-hand to spur creative activities. Moreover, the results regarding the platform’s response to competition show that the involvement of a platform in commercializing creative work can distort the relationship between producers’ efforts and market performance. This insight is particularly relevant to the ongoing debate about whether or not the emergence of powerful gatekeepers in a growing number of industries today harms producer welfare.

An important strand of organizational economics in knowledge-intensive production focuses on the cognitive (e.g., problem-solving) aspect of knowledge and regards the coordination of specialized knowledge as a key determinant of organizational efficiency ([15], [16]). This idea relates closely to the strategy research that stresses the role of knowledge creation and diffusion in the development of firm capacities ([3]). However, these two strands of literature develop in parallel without fruitful interactions. I attempt to bridge this gap in two papers. In “Knowledge, Communication, and Organizational Capabilities” (Organization Science 2012, [17]) with Garicano, we develop a coherent framework that encompasses a variety of economic theories and use this framework to analyze a set of classic managerial and strategy problems. In “Organizational Structure and Product Choice in Knowledge-Intensive Firms” (Management Science 2015, [37]), I formulate a theory that links the design of a knowledge-based hierarchy to a firm’s product choice. The basic idea is that when a firm moves to a high-end market position, production requires more-advanced knowledge. Then, frontline workers will encounter more unknown problems and have to ask managers for help more often. This will occupy managers’ time and limit the use of their knowledge, eventually slowing down firm productivity and offsetting the value of moving to the high-end position. To solve this conflict, a firm may acquire more knowledge for frontline
workers (e.g., training) and improve the communication efficiency between workers and managers (e.g., adoption of new information technology). As a result, a lean organizational structure and a high-end market position go hand-in-hand to achieve both production and organization efficiencies. The theory generates predictions consistent with the observed relationships between market positioning strategy and hierarchical structure in consulting and law firms. In addition to advancing the study of knowledge intensive production, this paper also contributes to the economic study of strategic fit ([30], [31]).

Some of my research studies the aggregate implications of organizational design. An intriguing phenomenon is the observed wage inequality across levels of managerial job. For example, CEO pay differs substantially across firms, and this difference has increased drastically in the last three decades. In contrast, the wage difference of midlevel managers and frontline workers is modest across firms and has not changed much over time. To explain these observations, I develop a theory that links worker ability, pay-performance sensitivity, and pay levels across a wide range of jobs in “Incentive Contracts and the Allocation of Talent” (EJ, 2017, [39]). The central result is the sorting of individuals, on the basis of managerial ability, into production workers, small business owners, and salaried managers that correspond to three basic types of incentive contracts: fixed salary, residual claim, and contingent pay. The theory generates empirically testable predictions regarding the effects of skill-neutral technological progress and increased market competition on wage inequality across managerial levels and occupations.

My future research on organizational economics is to study the factors that drive firm growth in knowledge-intensive industries. To this end, I have started to collect data on personnel information, organizational structure, and performance of professional service firms such as law firms and venture capital firms in the US and in other countries.
References


