

# Curriculum and Ideology

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Davide Cantoni

*Ludwig-Maximilians-Universität München, Centre for Economic Policy Research, and CESifo*

Yuyu Chen

*Peking University*

David Y. Yang

*Stanford University*

Noam Yuchtman

*University of California, Berkeley, National Bureau of Economic Research, and CESifo*

Y. Jane Zhang

*Hong Kong University of Science and Technology*

We study the causal effect of school curricula on students' political attitudes, exploiting a major textbook reform in China between 2004 and 2010. The sharp, staggered introduction of the new curriculum across provinces allows us to identify its causal effects. We examine government documents articulating desired consequences of the reform and identify changes in textbooks reflecting these aims. A survey we conducted reveals that the reform was often successful in shaping attitudes, while evidence on behavior is mixed. Studying the new curriculum led to more positive views of China's governance, changed views on democracy, and increased skepticism toward free markets.

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## I. Introduction

Beliefs, attitudes, and ideology play a fundamental role in human societies: they shape interactions within social networks and in markets, and they underlie political institutions and policy choices. People's attitudes are formed by a variety of sources: they are transmitted from parents to children; from peer to peer; and from third parties, such as media, experts, or the state; and they arise from individual experiences.<sup>1</sup> The influence of education on attitudes has also been widely studied across the social sciences, but without an established body of clear, causal evidence of its effects.

In this paper, we use evidence from a survey we conducted with nearly 2,000 Peking University undergraduate students to study the causal effect of school curricula on students' political attitudes and beliefs, examining the impact of a new high school politics curriculum that was introduced by the Chinese Communist Party between 2004 and 2010 with the explicit intention of shaping students' ideology. The State Council (the highest administrative body in the Chinese government) and the Ministry of Education issued documents articulating the government's objectives for the new curriculum: among these were emphasizing the adherence of the Chinese government to the rule of law, teaching students about Chinese socialist democratic institutions, teaching students about China's unique economic institutions and development path, cultivating in students a traditional national identity that bridged ethnic groups, and promoting increased concern for the environment.

The curriculum reform we study offers a particularly promising setting in which to estimate the causal effect of educational content on students'

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<sup>1</sup> Parent-child transmission has received considerable attention, e.g., Bisin and Verdier (2001). Peers' influence on beliefs has been studied by Sacerdote (2001, 2011), among others. Strömberg (2004), DellaVigna and Kaplan (2007), DellaVigna et al. (2014), and Shapiro (2014) study the influence of the media on political views; Alesina and Fuchs-Schündeln (2007) study the effects of growing up in a communist system on policy preferences later in life. Di Tella, Galiani, and Schargrodsky (2007), Malmendier and Nagel (2011), Rao (2013), and Giuliano and Spilimbergo (2014) study the role of individuals' experiences in shaping attitudes and beliefs.

beliefs and attitudes. Between 2004 and 2010, the new curriculum (the Eighth Curriculum Reform) was sharply introduced to entering cohorts of high school students (but not to older students) in a staggered manner, with different provinces adopting the new curriculum in different years. Using our survey, we confirm that students studied the intended textbooks: nearly 95 percent of students identify the textbook cover we predict given their home province and high school entry date. In addition, we find that the changes in the textbooks' content are reflected in students' factual knowledge.

The primary purpose of our survey was to elicit students' political attitudes and beliefs. We specifically asked students questions in a manner that did not look like a series of examination questions, and the pattern of responses does not look like what one would expect if students' responses simply reflected what they believed to be "correct" answers. Our survey allows us to measure the political attitudes and beliefs of four cohorts of Chinese students, who entered high school between 2006 and 2009, drawn from 29 Chinese provinces.

We apply a generalized difference-in-differences framework to test whether students who studied under the new curriculum express political attitudes different from those of students who studied under the old curriculum. To derive hypotheses, we carefully examine government documents detailing the goals of the reform, and we compare the old and new versions of the textbooks, both qualitatively and quantitatively (through word frequencies). We identify five broad categories of attitudes the government wished to affect: (i) views on governance, (ii) views on Chinese political institutions, (iii) views on economic institutions, (iv) students' views on Chinese identity, and (v) attitudes toward the environment. In addition to studying the effect of the new curriculum on these attitudes, we also study (vi) behavior related to the attitudes we examine (specifically, self-reported political behavior, economic choices, and past cooperation with Chinese ethnic minorities).

We find that the new curriculum was often successful in changing students' attitudes on important issues, in the direction intended by the Chinese government. Regarding governance, students exposed to the new curriculum have greater trust in government officials, view government officials as more civic minded, and see bribery as less prevalent and effective. With respect to political institutions, students exposed to the new curriculum see China as more democratic and view individuals' political participation as a defining characteristic of democracy but are more skeptical of unconstrained democracy—precisely the message conveyed by the new curriculum (and matching the government's aim of teaching students about "socialist democracy"). Finally, students exposed to the new curriculum express more skeptical views of unconstrained free markets, again matching the content of the new curriculum and the government's

aim of teaching students about Chinese (as opposed to Western, free-market) economic institutions.

On the other hand, we do not find statistically significant effects for some of the attitudes that we examine. As desired by the government, students express somewhat more “multiethnic” views of Chinese national identity and also express a somewhat stronger sense of their own national identity, though these effects are not statistically significant. The new curriculum did not cause students to favor policies protecting the environment. In fact, attitudes move in the opposite direction of what the government intended, perhaps because environmental protection can be seen as opposed to economic growth—another high priority.

We also surveyed students regarding their engagement in behavior related to the attitudes that the government wished to shape. Here our results are mixed: students exposed to the new curriculum engage in significantly less risky investment activity (investing in stocks and bonds), consistent with viewing markets with more skepticism. Studying the new curriculum is not associated with significantly different rates of cooperating with ethnic minorities, which is consistent with students not reporting a significantly more expansive sense of their national identity. In the political institutions dimension, we find that students exposed to the new curriculum engage in slightly more political activity (such as voting/planning to vote and participating in political organizations), but the difference between their behavior and that of students exposed to the old curriculum is not statistically significant. This stands in contrast to the highly significant differences in views on Chinese governance and political institutions.

The statistically insignificant effects of the new curriculum on political behavior may, in part, reflect Peking University students’ very constrained opportunities to engage in political behavior. In Section V, we examine the association between stated attitudes and reported political behavior in the Asian Barometer Survey, a broader sample with an older population. In the Asian Barometer sample, we indeed find a statistically significant relationship between stated trust in local government officials and political behavior: more trust is associated with less participation in demonstrations and less refusal to pay taxes. While this evidence is merely suggestive, the greater trust in government officials that we attribute to the new curriculum may reduce antigovernment behavior among affected students in the decades ahead.

Our findings contribute to a vast social science literature on the ability of educational content to shape individuals’ beliefs, preferences, and political ideology. Prior work ranges across centuries and continents: from studies of the construction of a “national sentiment” through public schooling in nineteenth-century Prussia and France (Weber 1976), to studies of American schools in the nineteenth and twentieth centuries (Dewey

1916; Lipset 1959; Freire 1970; Bowles and Gintis 1976), and communist and socialist education in the second half of the twentieth century (Lott 1999).<sup>2</sup> Despite striking examples of schooling changes being associated with ideological changes (e.g., education in Nazi Germany), it is difficult to determine whether schooling plays a causal role in shaping beliefs or if, instead, changes in curriculum simply coincide with other social, political, or economic changes that themselves shape preferences.

Recently, scholars have begun making progress toward identifying the causal effect of education on political attitudes and ideology. Friedman et al. (2015) exploit experimental variation in access to additional schooling on Kenyan women's political and social views. Their work identifies an effect of schooling on attitudes but does not identify the effects of particular educational content on attitudes. In a study of the impact of Catalan education on political attitudes, Clots-Figueras and Masella (2013) exploit variation that is similar to ours—cohort-varying exposure to new educational content—but they lack the sharp variation in educational content across cohorts that we can exploit, and they also lack credible cross-sectional variation with which to address concerns about unobservable cross-cohort differences. Their work also studies the combined effect of changes in the language of instruction with changes in content, in a context of broad political change.

By examining sharp province  $\times$  cohort variation in school curricula, we can plausibly identify the causal effect of educational content on attitudes and ideology. Specifically, our identification strategy allows us to rule out as confounding factors (i) province-specific differences (e.g., levels of development), (ii) cohort-specific differences (e.g., broad changes in attitudes across time), (iii) province  $\times$  time-varying shocks that affect adjacent cohorts similarly (e.g., natural disasters or province-level political shocks that do not differentially affect children of different ages), and (iv) province  $\times$  time-varying shocks that affect adjacent cohorts differentially, but smoothly (e.g., province-specific trends in economic activity), in a specification that includes province-specific cross-cohort trends. We also implement a variety of techniques (following Anderson [2008]) to address concerns regarding statistical inference, given that we test multiple hypotheses.

Beyond identifying the causal effect of typically endogenous curriculum change, our particular setting is of great interest. The variation in educational content we observe is naturally occurring, introduced on a massive scale by an authoritarian state that explicitly aimed to shape students' views. Whether the Chinese government can shape the political attitudes of Chinese children is difficult to know *ex ante*: on the one hand, the Chi-

<sup>2</sup> See also Gradstein and Justman (2002, 2005), Spilimbergo (2009), Campante and Chor (2012), Alesina and Reich (2013), Friedman et al. (2015), and Bandiera et al. (2016).

nese government is greatly concerned with information control; it seems to be very effective in implementing policies across many domains; in addition, Chinese children spend a great deal of their time in school, absorbing information on which they will be tested. On the other hand, students know that the Communist Party disseminates information (school curricula and media) in part driven by political concerns. One might believe that students will thus view the official curriculum with skepticism—or even react negatively against it.<sup>3</sup> The new curriculum might also fail to persuade students because the internet allows students to easily access content that differs from official party positions.<sup>4</sup> Thus, an important question in the internet age is whether school curricula can affect ideology even when students know that their curriculum may be shaped by political concerns and when students have access to information that differs from the party line.

Our finding that China's Communist Party successfully shaped students' views contributes to a growing empirical literature on persuasion (DellaVigna and Gentzkow 2010), much of which has focused on the persuasive effects of media communications (Strömberg 2004; DellaVigna and Kaplan 2007; DellaVigna et al. 2014; Yanagizawa-Drott 2014; Bursztyn and Cantoni 2016). Recent work has focused on attempts by authoritarian regimes to shape the views of their citizens (Alesina and Reich 2013), to which we contribute a study of the role of educational content in shaping political attitudes. Our findings suggest that alongside other mechanisms of social and political control, political elites can shape students' attitudes by choosing the content of the education system.

The paper proceeds as follows: in Section II, we discuss China's Eighth Curriculum Reform, which is the focus of our study; we identify specific attitudes the Chinese government wished to shape and present qualitative and quantitative evidence of changes in textbook content that reflect the Chinese government's aims. In Section III, we describe our survey of Peking University students, which is our primary data source, and discuss our approach to statistical inference. In Section IV, we present our empirical model and our main results. In Section V, we provide a discussion of robustness, economic magnitudes, and external validity. Finally, in Section VI, we place our findings within the social science literature on the effects of schooling on political beliefs and attitudes and present conclusions.

<sup>3</sup> Fouka (2016) presents evidence that government policies aimed at promoting cultural assimilation among German Americans in the United States in the early twentieth century backfired.

<sup>4</sup> Edmond (2013) models sophisticated consumers of potentially biased government media and emphasizes the importance of media centralization for the government's ability to control information and prevent revolt.

## II. China's Curriculum Reform

We study China's Eighth Curriculum Reform, a nationwide education reform undertaken by the Chinese central government beginning in 2001.<sup>5</sup> The curriculum reform was described by government officials as "historically important" and among the most significant changes in educational policy since China's economic reforms.<sup>6</sup> Our focus will be the reformed textbooks of senior high school (*gaozhong xinkebiao*) students, corresponding to grades 10–12 in the Chinese educational system.<sup>7</sup>

### A. *The Introduction of the New Curriculum across Space and Time*

The mode of introduction of the revised curriculum makes China's curriculum reform an especially promising context in which to study the causal effect of a change in curriculum. Between 2004 and 2010, different Chinese provinces, in different years, introduced new high school curricula and textbooks for incoming cohorts of senior high school students. Students entering high school one year would have a 3-year curriculum entirely different from that of students who entered high school just the year before. Students in the older, prereform cohort would not be "partially treated" because the college entrance exam was based either on the old curriculum or on the new one.<sup>8</sup>

The first entering cohorts to study under the new curriculum were students entering high school in 2004 (graduating in 2007) in the provinces of Shandong, Ningxia, Hainan, and Guangdong. Over the next 6 years, every other province except Shanghai saw the introduction of the new textbooks, with Guangxi, Sichuan, Guizhou, Qinghai, and Tibet finally introducing the new curriculum to entering high school students in 2010 (graduating in 2013). The introduction dates by province are presented in figure 1.<sup>9</sup>

<sup>5</sup> The previous, Seventh Curriculum Reform was initiated in 1992.

<sup>6</sup> The quote comes from Muju Zhu, Vice Chief at the Basic Education Bureau, Ministry of Education of China. See Hongtao Zhao, "High School Curriculum Reform Is a Historically-Important Mission" (2007; <http://goo.gl/Xf2jIX>). Tao Qi, Minister of Education of Shandong Province, placed the curriculum reform alongside reform of the job allocation system for college graduates as the most important educational policy changes in the post-economic reform era. See Quanzheng Song, "High School Curriculum Reform, the Earlier the Better—Minister of Education Tao Qi Discussing the Curriculum Reform" (2004; <http://goo.gl/81F7ND>).

<sup>7</sup> For reference, in online app. A, we briefly describe the structure of the Chinese high school curriculum.

<sup>8</sup> While students in different school cohorts may interact, in Chinese high schools the vast majority of a student's time is spent with other students in the same cohort; thus, there is limited potential for "contamination" of the old curriculum students by those treated by the new curriculum.

<sup>9</sup> In app. B, table B.1, we provide citations to government documents and official news reports announcing the introduction of the new curriculum in each province.



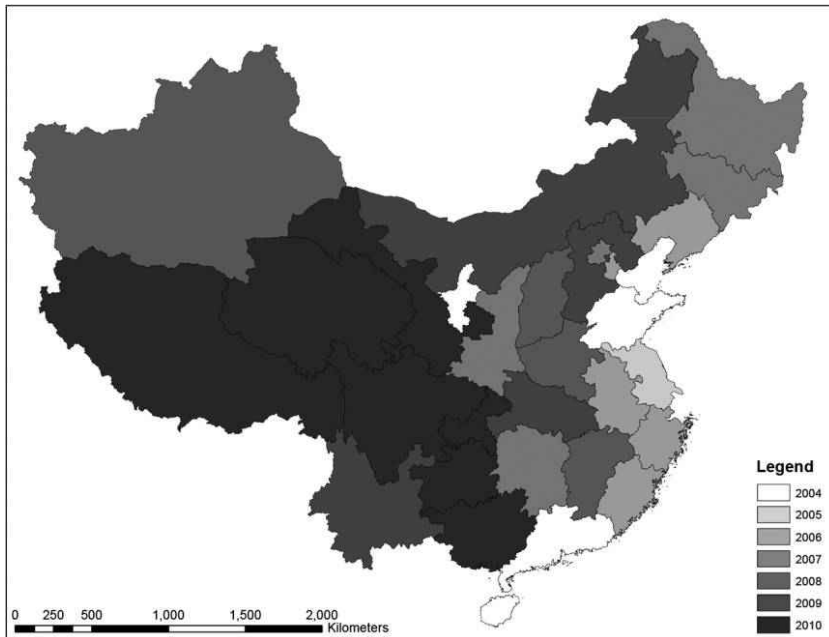


FIG. 1.—Years of introduction of the new curriculum textbooks. Color version available as an online enhancement.

It is worth stressing that the introduction date of the new curriculum was not randomly assigned across provinces. Provinces introduced the new curriculum when they had successfully trained teachers and developed supplemental materials based on the new textbooks. We discuss how nonrandom introduction of the new curriculum across provinces affects our identification of the causal effects of the curriculum below.

### *B. Political Aims of Curriculum Reform*

An explicit goal of the Eighth Curriculum Reform was to shape (or reshape) students' political and social beliefs. In a 2001 document preparing the reform ("Framework for Basic Education Curriculum Reform"), the Ministry of Education of the People's Republic of China stated that education should "form in students a correct worldview, a correct view on life, and a correct value system."<sup>10</sup> An author of the new politics textbooks

<sup>10</sup> Translated excerpts from this and other official documents preparing the curriculum reform are presented in app. C. Along with changes in the content of the curriculum, there was a desire to change the exam-oriented nature of primary and secondary education through the introduction of new instructional methods. However, this aspect of the reform



described the development of the new curriculum as follows: “The Politics textbook is the spiritual material that the country provides for its students. Writing the Politics textbook is an act at the state level, rather than an academic activity of the individual author. Although the high school Politics textbook teaches very basic knowledge, it possesses extremely strong political, policy-oriented, and scientific characteristics. With a large readership, it will influence an entire generation of young people.”<sup>11</sup>

While the Eighth Curriculum Reform affected the content of textbooks across the high school curriculum (e.g., there was an increase in the discussion of Confucianism in the reformed humanities curriculum), we focus on changes made to the politics curriculum because it was designed for “moral and ideological education.”<sup>12</sup> Indeed, the State Council, China’s chief administrative authority, issued a memo in 2004 titled “Suggestions on Strengthening the Ideological and Moral Construction of Our Youths,” which articulated the government’s aims for the reform and guided the writing of the new politics textbooks. The memo declared the socialization of young people to be an “important and urgent strategic task” and saw schools as “the primary channel for transmitting ideological and moral education to young people.”<sup>13</sup> We consulted the State Council memo, several other government documents, as well as the Ministry of Education’s “Curriculum Framework for the Senior High School Politics Subject” to identify the government’s objectives for the curriculum reform (these documents are described in online app. C).

### C. *Changes in Textbook Content and the gaokao: Qualitative Evidence*

To identify specific changes in the politics curriculum content that matched the government’s objectives, we first performed a comprehensive comparison of the old and new editions of the *Economic Life* and *Po-*

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is acknowledged to have failed; see, e.g., Hua Gua, “New Curriculum and ‘Wearing New Shoes to Walk on the Old Path’” (2010; <http://goo.gl/VFDmwB>). We examine changes in instructional methods across curricula in further detail in Sec. V.

<sup>11</sup> Appendix B includes this and other translated excerpts from an essay written by Tian Xinming, chair of the committee in charge of rewriting the politics textbook. The original text can be found at [http://www.pep.com.cn/sxzz/js/tbjx/kb/jsys/bx1/201008/t20100830\\\_824446.htm](http://www.pep.com.cn/sxzz/js/tbjx/kb/jsys/bx1/201008/t20100830\_824446.htm).

<sup>12</sup> See app. B for translated excerpts from the essay written by the chair of the committee in charge of rewriting the politics textbook (original text at [http://www.pep.com.cn/sxzz/js/tbjx/kb/jsys/bx1/201008/t20100830\\\_824446.htm](http://www.pep.com.cn/sxzz/js/tbjx/kb/jsys/bx1/201008/t20100830\_824446.htm)). Chinese high school students specialize in either a science track or a humanities track, with students in both tracks studying the politics material on which we focus. While the politics material is higher-stakes for humanities track students, students in both tracks are tested on it as part of the college entrance process. We find similar effects of the new curriculum for the two tracks (see Sec. V); our baseline analysis pools students from the two tracks.

<sup>13</sup> The document is available online at <http://www.people.com.cn/GB/jiaoyu/1053/2405224.html>. See app. C for translated excerpts.

*litical Life* textbooks.<sup>14</sup> The politics textbooks (unlike other subjects) are common to all provinces of China except Shanghai—one set for the old curriculum and one set for the new curriculum—greatly simplifying our analysis and reducing concern about endogenous variation in textbook content. While much of the textbooks' content was maintained across curricula, some content changed considerably.

We identified sections that were entirely new to the reformed textbooks, sections that were removed from the old textbooks, and sections that were extensively revised. We also examined variation in the material on which students were tested in China's high-stakes college entrance exam (*gaokao*). Specifically, we compared the *gaokao* frameworks across curricula to confirm that the framework associated with the new curriculum incorporated the revisions, additions, and deletions of the new curriculum in a manner that matches changes in the textbook content that we identified.<sup>15</sup> Indeed, for all of the textbook content changes on which we focus, we find corresponding changes in the *gaokao* framework; this is *prima facie* evidence that the changes in content would have been important to teachers and students.

It is clear from our analysis that several sets of striking curriculum changes were consistent with the objectives outlined in the government documents. These changes fit into five broad categories of political attitudes that the Chinese government wished to change: (i) views on governance, (ii) views on Chinese political institutions, (iii) views on economic institutions, (iv) students' views on Chinese identity, and (v) attitudes toward the environment. Here we describe the qualitative evidence of textbook changes matching the government's desired attitude changes.<sup>16</sup>

*Governance.*—It is clear from the government documents on curriculum reform that a high priority was to teach students about institutions that legitimized the Chinese government and its officials, especially ad-

<sup>14</sup> These textbooks made up two-thirds of the old politics curriculum and half of the new politics curriculum. The old curriculum included a *Philosophy* textbook, and the new curriculum includes both *Philosophy* and *Cultural Life*. We felt that the *Philosophy* textbook was too nebulous to systematically link to the political objectives of the Chinese government, and the *Cultural Life* textbook could not be compared across curricula. We do examine the content of the *Cultural Life* textbook in our quantitative textual analysis below. Images of the covers of old and new politics curriculum textbooks can be seen in app. B.2.

<sup>15</sup> Carnoy et al. (2013, chap. 6) describe the importance of the *gaokao* and the *gaokao* framework (or "syllabi") as follows: "The college entrance exam in China is a two-day high stakes test whose score largely determines into which college and major a student will be admitted. . . . Moreover, the curriculum in Chinese academic high schools is heavily structured around the college entrance exam. This is because most provinces in China release syllabi to high school teachers about what will generally be covered on each year's (provincial-level) exam."

<sup>16</sup> In app. D, we present an item-by-item discussion of each of these government aims: we point to their discussion in government documents, we identify changes in the politics textbooks that match the government objectives, and we describe changes in the *gaokao* framework that match the objectives as well.

herence to rule of law. Reflecting this aim, the new curriculum's *Political Life* textbook includes an added section titled "Where Does Government's Authority Come From?" which states, "Where does the Chinese government's authority manifest itself? A government with authority must be a government under the rule of law. It guards the ultimate authority of the constitution and the legal system, and hence protects people's fundamental rights and benefits" (49).

The new curriculum's *gaokao* framework reflects the changes to the textbook, with added sections in the *Political Life* module on "the functions and duty of the Chinese government," "the principles of the Chinese government," and "the significance and necessity of rule of law."

*Political institutions.*—The Chinese government's documents on curriculum reform also emphasize teaching students about "socialist democracy." This notion of democracy is more limited than the Western concept: it involves the participation of citizens while maintaining the political status quo of one-party rule (Brady 2008). Reflecting this, the new *Political Life* textbook includes entirely new sections on political participation and electoral institutions. Some of these are descriptive, providing information on voting for offices such as village head and People's Congress representative. Others are prescriptive; importantly, the new curriculum does not simply advocate unfettered political expression and action; it highlights the institutions allowing for political participation in China while drawing a clear distinction between orderly and disorderly civil participation.

For example, the *Political Life* textbook includes a new section titled "Cherish Your Voting Rights," which states, "Citizens have to continue improving themselves in participating in democratic elections, so that they can exercise their voting rights well. Only then can citizens be able to better manage China's national and social affairs, as well as its economic and cultural matters" (17–18).

A bit further into the *Political Life* textbook, there is another new section titled "Orderly and Disorderly Political Participation," which states that orderly political participation depends on "whether citizens can correctly handle the relationship between their political rights and political duties. As long as we are under the leadership of the Chinese Communist Party, following the constitution, laws and regulations, we can ensure orderly political participation. Without the leadership of the Chinese Communist Party, violation of laws, regulations, and procedures will inevitably lead to disorderly participation" (30).

The new sections in the textbook are reflected in the *gaokao* framework for the new curriculum as well. The framework includes the following new modules in the *Political Life* component: "Channels for Chinese Citizens' Participation in Political Life," "Multiple Ways for Citizens to Par-

ticipate in Democratic Decision-Making,” “The Meaning and Significance of China’s Villages and Urban Dwellers Governing Themselves,” and “Citizens Need to Realize Their Democratic Supervising Rights Responsibly.”

*Economic institutions.*—Government documents shaping the new curriculum emphasized the importance of the “socialist market economy” (as opposed to a free-market economy) for economic and social development. In the new *Economic Life* textbook, many sections emphasize the “socialist market economy,” in which markets are complemented or corrected by state or socialist institutions. For example, the important role of state-owned enterprises is made clear in the new curriculum’s *Economic Life* textbook: “Just like the pillars that support skyscrapers, state-owned enterprises (SOEs) are the backbone of China’s domestic economy. They control the life vessels of the economic system, and play a vital and leading role in the system. To develop, expand and strengthen the SOEs is of critical importance, to demonstrate the superiority of socialist system, to strengthen China’s economic power, national defense power, as well as ethnic unity. They can also elevate the international position of China” (31).

Social inequality—a major threat to Chinese political and social stability—is explicitly linked to market institutions. The new *Economic Life* textbook states that “allowing markets alone to allocate resources will lead to inefficiency and waste, as well as socioeconomic instability. Market functioning alone can also result in economic fluctuations and chaos, unfair redistribution, widening income gaps, and even cause severe polarization” (81).

Many changes in the *gaokao* framework also emphasize the important role played by the state in the economic system. In the *Economic Life* section of the framework, new sections include “Sustainable and Balanced Economic Development,” “Public-Ownership Structure Should Play a Major Role,” and “Multiple Ownership Structures Develop Simultaneously.”

*Identity.*—The Chinese government made it a high priority to cultivate a “national spirit” encompassing both the majority Han Chinese and the minority ethnic groups in China. The new *Political Life* textbook adds an entire section titled “Principles of Dealing with Relationships among Ethnic Groups: Equality, Unity, Joint Prosperity” (72). The new *Cultural Life* textbook adds two sections titled “The Eternal Chinese Ethnic Spirit” and “Promoting the Chinese Ethnic Spirit” (71–81). The emphasis on ethnic and national pride and unity in the new curriculum is striking: the new curriculum’s *Political Life* textbook states, “It is every Chinese citizen’s responsibility to abide by the Constitutional duty that one has to guard national and ethnic unity and harmony. As a youth in China today, we need to put our responsibility to develop Socialist multi-ethnic harmony into action” (75).

According to the new curriculum's *Cultural Life* textbook, "The power of the Chinese civilization is primarily manifested by the power of the Chinese ethnic spirit. . . . After five thousand years of development, the Chinese ethnic group has formed a great ethnic spirit centered around patriotism, and encompassing unity, peace, diligence, bravery, and perseverance" (71–72). The new curriculum's *gaokao* framework also added new sections regarding Chinese ethnic unity: "Promote Chinese Ethnic Spirit" and "The Core of Chinese Ethnic Spirit."

*Environment.*—Government documents structuring the curriculum reform mention consciousness of the environment as a value that ought to be instilled in Chinese students. The new *Economic Life* textbook includes a new section titled "Establishing the Correct View on Consumption," which states that "we should protect the environment and consume 'green.' Facing a severe shortage in resources, and environmental pollution, we should establish an attitude of environmental friendliness, and maintain the harmony between people and nature" (22). The new curriculum's *gaokao* framework includes new sections in the *Economic Life* module titled "Scientific Outlook on Development" and "Sustainable and Balanced Economic Development," which include discussions of environmental issues.

#### D. *Changes in Textbook Content and the gaokao: Quantitative Evidence*

In addition to our qualitative analysis of the textbooks' content, we conducted a quantitative analysis of the text in the old and new politics curricula.<sup>17</sup> To structure our analysis, we searched for each word contained in the Chinese State Council document, "Suggestions on Strengthening the Ideological and Moral Construction of Our Youths," which outlined the government's objectives for the reform. For each word, we calculated the frequency of that word in the old politics textbooks and the new. We also refine our search for words, manually identifying 67 out of the 1,166 words within the State Council document that match our five broad categories of interest.<sup>18</sup> For comparison, we also search for the 1,166 most frequent words in the Chinese language, taken from the *Modern Chinese Frequency Dictionary* (Beijing Language College and Language Education Research Institute 1985), and again calculate the frequency of each word in the old and new textbooks.

<sup>17</sup> We digitized and examined the *Economic Basics* (tenth-grade module A) and *Political Basics* (tenth-grade module B) texts for the old curriculum and the *Economic Life*, *Political Life*, and *Cultural Life* texts for the new curriculum.

<sup>18</sup> In app. C.3, we present the full list of these words that match the government objectives on which we focus.

In figure 2, we present the cumulative distribution functions of the percentage change in the frequency of words across curricula, for three sets of words: the full set of government document words, the subset of government document words that match our five main attitudes of interest, and the dictionary words. One can see in the figure that the words present in the government document increase in frequency systematically more than the comparison dictionary words. Moreover, the words linked to our five broad categories of interest show much greater increases in frequency than the other government document words; again, this is seen across the distribution of words.

In addition to examining the full set of 67 words in the government document that were related to the five categories of attitude change we identified as government objectives, it is of interest to focus on key terms in the government document most closely linked to these attitudes. In table 1, panel A, we present counts and the percentage change in frequency of two “keywords” for each category of attitudes that we examine.

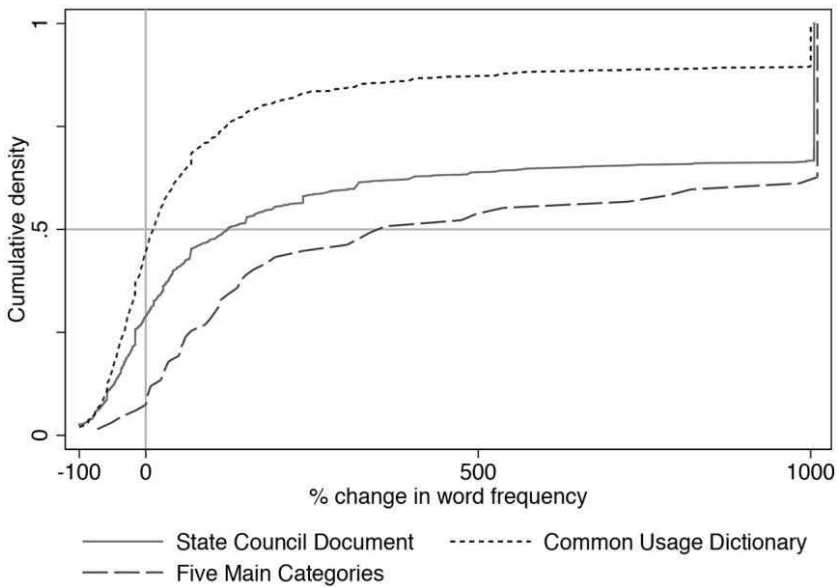


FIG. 2.—Cumulative distribution functions of the percentage change in a word’s frequency across curricula for three sets of words: the 1,166 words in the State Council document, “Suggestions on Strengthening the Ideological and Moral Construction of Our Youths,” the subset of 67 State Council document words that match our five main attitudes of interest, and the 1,166 most frequent words in the Chinese language, taken from the *Modern Chinese Frequency Dictionary*. The percentage change in frequency is top coded at 1,000; words appearing only in the new curriculum (with percentage change equal to infinity) are assigned the top code.

TABLE 1  
CHANGES IN WORD COUNTS FOR FIVE BROAD CATEGORIES OF INTEREST

Word in English	Word in Chinese	Outcome Category	Count in Old Curriculum	Count in New Curriculum	Change in Frequency (%)
A. Categories of interest:					
Rule of law	依法治国	Governance	0	10	$\infty$
Supervision	监督	Governance	30	116	225
Election	选举	Political institutions	2	120	4,948
Democracy	民主	Political institutions	11	282	2,057
Market economy	市场经济	Economic institutions	208	67	-73
Socialism with Chinese characteristics	中国特色社会主义	Economic institutions	4	97	1,940
Chinese ethnic group	中华民族	Identity	1	100	8,313
Homeland	祖国	Identity	1	51	4,191
Environmental protection	环保	Environment	0	4	$\infty$
Sustainable development	可持续发展	Environment	0	3	$\infty$
B. Comparison terms:					
Opening-up	对外开放	...	20	19	-20
Domestic	国内	...	47	43	-23
Region	地区	...	69	66	-20
Resident	居民	...	48	54	-5
Jiang Zemin	江泽民	...	0	4	$\infty$
Hu Jintao	胡锦涛	...	0	7	$\infty$

NOTE.—Frequency equals the count of a word divided by the total number of words in the textbooks used in the new or old curriculum. The old curriculum textbooks contained a total of 145,062 words; the new curriculum textbooks contained a total of 172,424 words. Panel A shows counts of “keywords” closely linked to the five broad categories of attitudes on which we focus, by curriculum. Panel B shows analogous counts for political concepts that were not focused on by the Chinese government, counts for “neutral” terms, and counts for the names of political leaders of China in the early twenty-first century who were not mentioned in the old textbooks. All terms come from the State Council document “Suggestions on Strengthening the Ideological and Moral Construction of Our Youths,” issued in 2004.

One can see that these keywords are typically associated with unusually large increases in frequency. The one exception is “market economy,” which decreases in frequency. This change, and the very large increase in frequency of the term “socialism with Chinese characteristics,” reflect the more negative treatment of markets in the new textbooks.

We also show in table 1, panel B, the counts and changes in frequency of (i) two political terms that are not focused on by the Chinese government, (ii) two “neutral” (nonpolitical) words, and (iii) “Hu Jintao” and “Jiang Zemin,” two presidents of China who held office during the curric-



ulum reform process but whose names were never mentioned in the old curriculum. One can see that the changes in frequency we found for the five attitudes of interest are large relative to these “comparison” words.

Our quantitative analysis thus confirms our conclusions from reading the politics textbooks and examining the *gaokao* frameworks: the language used in the State Council document is far more prevalent in the new curriculum than in the old, and the specific concepts on which we focused our qualitative discussion show even sharper changes in prevalence across curricula.

### III. Survey of Peking University Students

We measure students’ beliefs using a web-based survey we conducted April and May 2013 (the entire set of survey questions is provided in online app. E). We sent an e-mail invitation to participate in the survey to the complete e-mail list of undergraduate students at Peking University; students were offered payment for their participation and were included in a raffle for a number of desirable Apple brand electronics. We received nearly 2,000 completed surveys, for a response rate of around 18.6 percent of the undergraduate population of Peking University. Participants were paid an average of 58 RMB (\$9.50) and were awarded multiple iPads and iPods.<sup>19</sup>

#### A. Survey Questions Measuring Political Attitudes and Behavior

We study six broad categories of outcomes from among the larger set of survey questions: responses to survey questions regarding the five categories of political attitudes that the Chinese government aimed to shape (discussed in detail above) and questions eliciting self-reported behavior linked to these attitudes.<sup>20</sup> Within the six broad categories, we organize survey questions into subcategories where appropriate. We always code the responses to these questions such that the Chinese government’s desired attitudes are assigned larger, more positive numbers. The specific survey questions eliciting our outcome variables are shown in the Appendix.

<sup>19</sup> The survey’s content and implementation procedure were approved by the University of California, Berkeley, Committee for Protection of Human Subjects, Protocol ID 2012-05-4323. The recruitment e-mail (in Chinese and in English translation), a screenshot from the survey, and an image of an iPad winner are all provided in app. E.

<sup>20</sup> In addition to the survey questions studied as outcomes, the survey included questions on students’ personal backgrounds (which we use to test for balance across curricula and as controls in our robustness analysis); questions on students’ perceptions of teaching practices (which we examine in Sec. V); questions regarding political attitudes not discussed in government documents related to the curriculum reform (discussed in apps. E and F); and questions about attitudes and beliefs outside the political realm (again, discussed in apps. E and F). The latter categories were included in the survey as part of a broader study of China’s elite.

A natural concern given the large number of survey question outcomes we examine is the possibility of false positives. To address concerns about multiple hypothesis testing, we construct a  $z$ -score index variable for each of the subcategories of attitudes we examine: trust in government officials, bribery and civic-mindedness, perception of Chinese democracy, and so forth. Following Anderson (2008), we standardize each component of the index and sum individuals' standardized outcomes ( $z$ -scores), weighting each outcome by the inverse of the covariance matrix of the standardized outcomes.<sup>21</sup> The index for each category will both help us address concerns about multiple hypothesis testing (by reducing the number of hypotheses we test) and also capture broad attitude changes that are only imperfectly measured by any single survey question. In addition to examining the effects of the new curriculum on broad indices, when we examine individual survey question outcomes, below, we address concerns about multiple hypothesis testing by presenting  $p$ -values that are adjusted using the false discovery rate (FDR) procedure (Benjamini, Krieger, and Yekutieli 2006; Anderson 2008). For transparency, we also show estimated effects of the new curriculum on all of our survey questions (not just the outcomes of interest) in appendix F, figure F.2.

### *B. Survey Response Rate*

The response rate we achieved, 18.6 percent, is very much in line with other online surveys that rely on impersonal, e-mail recruitment.<sup>22</sup> Because the response rate is lower than that seen in surveys using alternative methods, it is important to discuss a range of questions about the inferences one can make from our sample. The first question that arises is one of power: even if selection into our survey were random, a low response rate can limit our ability to precisely estimate treatment effects. However, the response rate was in line with our expectations from the literature on online surveys, so by design our sample size is large enough to identify economically meaningful effects of the new curriculum as statistically significant.

A second question is of greater concern for making causal claims: if selection into the sample were nonrandom, this may bias our estimated

<sup>21</sup> We also standardize the  $z$ -score index to allow for easier interpretation of the magnitudes of our regression estimates. Other methods used to construct a single variable that summarizes a set of related outcomes, e.g., an equally weighted average of the standardized outcomes, or the first principal component of the set of outcome variables, generate very similar results (we present a broad set of results using first principal components in app. G). Such index variables have been used to evaluate the effectiveness of policy interventions on a set of related outcomes; see, e.g., Kling, Liebman, and Katz (2007).

<sup>22</sup> For example, in meta-analyses, Manfreda et al. (2008) and Shih and Fan (2008) find that around one-third of online surveys examined have a response rate below 20 percent and over half have a response rate below 30 percent; see also Kaplowitz, Hadlock, and Levine (2004).

treatment effects. It is important to emphasize that for nonrandom selection into our sample to threaten the internal validity of our estimated effects, the selection would need to be differential across curricula. We can test for differential selection into the survey by curriculum in two ways. First, using information on the total number of students enrolled in Peking University by province and cohort, we can estimate the difference in response rates by curriculum, conditional on province and cohort fixed effects.<sup>23</sup> In fact, we find that the (conditional) response rate differs across curricula by less than 2 percentage points, statistically indistinguishable from zero (see the note to table G.3 in app. G). Second, we can test for balance of observable student characteristics across curricula in our sample (again conditional on province and cohort fixed effects). As we discuss below, we find that our sample is balanced between curricula across a range of observable covariates. The lack of evidence of selection correlated with the curriculum studied indicates that we are able to estimate an internally valid causal effect of the new curriculum, conditional on being in our sample. We further discuss concerns about selection into the survey, selection into Peking University, and the external validity of the effects that we estimate in Section V.

### C. *Interpreting the Survey Responses*

Many of our outcome variables are self-reported responses to direct survey questions. It is natural to wonder what exactly is captured by variation in these responses. Here we discuss several concerns with using students' responses to direct survey questions to evaluate the impact of the new curriculum.

*Do students try to respond "correctly" to exam-style questions?*—An important concern is that students who study under different curricula may all have the same private attitudes. But if they try to provide "correct" answers to questions that are similar in structure or content to exam questions and if the correct answer differed across curricula, then responses to exam-style questions might differ even if attitudes do not.

To address this possibility, we took care to ask our questions of interest in a manner that did not look like the questions students would have seen in the *gaokao* or any other exam. Indeed, other than a small number of factual questions related to the new curriculum, which we do not include as part of our analysis of political attitudes, the vast majority of questions explicitly asked about students' own opinions. Most of our questions looked nothing like exam questions, and they typically came from pre-existing social surveys that had nothing to do with the analysis of Chinese

<sup>23</sup> In app. G, we show the number of respondents by province  $\times$  cohort cell, as well as the number of students enrolled in Peking University from each cell.

education. For example, we asked students about their trust in various categories of government officials, which plausibly may have been influenced by students' study of a curriculum emphasizing the rule of law and citizen oversight of officials. Importantly, no exam ever asked students direct questions about their trust of government officials.

One can see suggestive evidence in the distribution of students' responses that our attempts to write questions that elicited students' opinions were successful. This can be best examined in the case of the variables relating to trust in government officials, as they are measured on a 1–5 scale, allowing one to see shifts across the distribution of attitudes (we present the distributions of responses to these questions by curriculum in app. G, table G.4). A first indication that respondents are likely not attempting to provide “correct” responses is the broad range of answers to all of the questions we asked. In each curriculum, for all outcomes, we found responses in the full range, from 1 to 5, and in every case the modal response was provided by less than 60 percent of students. Another indication that in the new curriculum there was not a clearly correct answer to our questions about trust is that modal responses were not located at an end of the distribution. Nor was there always the same modal response: we see modes of either 3 or 4 for our various outcomes.

The changes in the distribution of responses across curricula are also consistent with students' opinions changing, rather than simply moving to a new correct response. One can see that for many outcomes, not only are there shifts in the distribution toward the new curriculum modal response (from below), but there are also movements away from the modal response (moving up). For example, we asked students about their trust in local government on a 1–5 scale. Under the old curriculum, the modal response was 3, with nearly 48 percent of students indicating this level of trust. Under the new curriculum, the mode remained 3 (indicating no change in a correct answer), with 45.25 percent of students choosing this response. Interestingly, responses of 1, 2, and the modal response of 3 are all less common under the new curriculum, while the number of responses of 4 increased by nearly 12 percentage points (over 50 percent).

*Do students try to express socially acceptable or politically correct views?*—A second concern is that students who study under the new curriculum may not have their attitudes changed but respond to survey questions differently after learning about a different set of constraints on the views that they ought to express. While there is always a concern that students will be afraid to reveal stigmatized or politically incorrect beliefs, there are several reasons to take students' responses in our survey at face value.<sup>24</sup>

<sup>24</sup> The state's ability to shape what individuals see as acceptable expression by changing the curriculum may itself be of interest and may have important consequences for political debate, coordination, and thus political behavior.

First, none of our questions touched on topics that are taboo in China, such as multiparty elections, views of the Communist Party per se, or direct criticism of the leadership of China. All the questions asked, indeed, were based on topics that were discussed in Chinese high school curricula, and all our questions were vetted by our mainland Chinese coauthor (Chen), by a variety of China scholars, and by high school teachers with whom we spoke. Importantly, recent scholarship on China provides evidence that criticism of the government online is both prevalent (despite a lack of complete anonymity) and tolerated by the government; censors focus their attention on silencing speech that may generate collective action (King, Pan, and Roberts 2013), which the privately expressed attitudes in our survey surely would not do.

Second, the main survey was conducted privately, online, so there would have been no direct social stigma attached to particular responses, nor should there have been strong experimenter demand effects. We also emphasized the confidentiality of students' responses in the online consent forms read prior to the survey (approved by the UC Berkeley Institutional Review Board).<sup>25</sup>

Third, as noted above, it is clear from the range of responses received in the survey that responses were not concentrated around a single "acceptable" response. Our questions regarding trust in various government officials and government bodies are perhaps the most politically sensitive of our survey questions. We find that 20 percent of individuals rate the central government at a 3 or below; for the provincial and local governments, this number is 38 percent and 65 percent, respectively; for courts, the army, and police, we see responses of 3 or below from 37 percent, 31 percent, and 47 percent of students. More students reported trust in the police at a level of 2 than at a level of 5. Clearly, some students were willing to give less than stellar marks to a range of government institutions.

Indeed, the fact that our study was run in Peking University makes it less likely that students would self-censor their beliefs out of fear of government (or peer) reprisals for expressing critical attitudes. Peking University is known to be a setting in which liberal views can be expressed, even contrary to government aims. Indeed, the university posted an article from the *Atlantic* magazine on its website stating that it is "an open secret that teachers at the school and neighboring Tsinghua University often broach topics critical of the government in the classroom"; a student quoted in the article states that most students are "very liberal minded, so it's ok to talk about sensitive political things."<sup>26</sup>

We also examine whether students who are more risk averse (and so likely to be more concerned about responding in a socially or politically

<sup>25</sup> The paper and pencil follow-up was also completed privately.

<sup>26</sup> The article can be found at [http://english.pku.edu.cn/News\\_Events/News/Outlook/10590.htm](http://english.pku.edu.cn/News_Events/News/Outlook/10590.htm).

acceptable way) exhibit effects of the new curriculum different from those of students who are less risk averse. We find that the more risk-averse respondents in the study do not show significantly different effects of the new curriculum (see app. G, table G.5).

*Stated preferences versus revealed preferences.*—As a final check that students' survey responses were meaningful, we can compare students' responses to direct questions about risk preferences to their choices in an incentivized game eliciting risk preferences, which took place after the survey. In the game, we elicit students' certainty equivalent to a risky gamble (the greater the certainty equivalent, the more risk-seeking is a student; see Dohmen et al. 2011). We find a positive, highly statistically significant relationship between self-reported risk preferences and the certainty equivalents from the incentivized game (in a bivariate regression, the coefficient on stated risk aversion is 0.163, with  $p < .001$ ). While questions about risk preferences are not likely to be associated with stigmatized attitudes, this remains a useful check that students responded to the survey in a manner that reflects their preferences.

#### IV. Empirical Analysis

##### A. Comparisons of Means

To begin our analysis of the effect of the new curriculum, we simply compare means of students' political attitudes across curricula; specifically, we examine means of the  $z$ -score indices constructed from the six broad categories of outcomes (12 subcategories) described above. Within the set of provinces for which we observe both students who studied the old curriculum and students who studied the new curriculum, we group together provinces that have the same curriculum introduction date (and thus have the same number of cohorts in our sample under each curriculum).<sup>27</sup> To allow for a difference-in-differences style comparison, we also plot mean attitudes among students in provinces that do not have variation in curriculum among the cohorts we study; we calculate means across cohorts that match the relevant comparisons for provinces with variation in curriculum.

<sup>27</sup> The oldest students in our survey sample were college seniors in the spring of 2013; they graduated from high school in 2009 and entered high school in 2006. Thus, if a province introduced the new curriculum for the 2006 high school entry cohort, the oldest students in our sample from that province (and all younger students, naturally) would have studied under the new curriculum, and we would lack within-province, cross-cohort variation in curriculum. The youngest students in our sample were college freshmen in the spring of 2013; they graduated from high school in 2012 and entered high school in 2009. Thus, if a province introduced the new curriculum in 2010, we would not observe anyone from that province who studied the new curriculum. The 13 provinces with variation in curriculum in our sample are Beijing, Hunan, Heilongjiang, Jilin, Shaanxi, Henan, Xinjiang, Jiangxi, Shanxi, Hubei, Yunnan, Inner Mongolia, and Hebei.

In figure 3, we present these means graphically. The bars show means for the relevant group of students in the provinces with variation in curriculum in our sample: comparing the bars, one can see differences in political attitudes between students who studied different curricula. The dots show means for the corresponding cohorts within the set of provinces without variation in curriculum among the cohorts we study: comparing the dots, one can see the difference in political attitudes across the same cohorts in the absence of any change in curriculum.

The top-left graph (panel A) shows means of trust in government officials by the curriculum studied, for each set of provinces. One can see that for each set of provinces examined with variation in curriculum, the mean level of trust is greater among individuals who studied under the new curriculum. Examining the mean trust in government officials among students from provinces without variation in curriculum in our sample, one can see almost no difference in trust across cohorts. Panel B shows means of the index variable measuring perceptions of bribery and views of government officials' civic-mindedness. For each set of provinces with variation in curriculum, we find that studying the new curriculum is associated with the view that bribery is less prevalent and effective and with more positive views of officials. There is very little difference in views on bribery and government officials across cohorts among students from provinces without variation in curriculum in our sample.

In panels C–I, one can see that for some attitudes (e.g., perceptions of Chinese democracy, skepticism of markets, and views on Chinese ethnic identity), there are consistent differences across curricula for all sets of provinces (in the direction the Chinese government desired). Other attitudes (e.g., national identity or views of the environment) are not consistently associated with the curriculum studied. Examining differences in attitudes among students from provinces without variation in curriculum in our sample, one can see that there are rarely differences in attitudes across cohorts that match the differences associated with the curriculum studied.

Panel J shows that engagement in political behavior, such as voting, is often lower among students exposed to the new curriculum. Some of this is simply due to differences in opportunities to engage in political behavior across cohorts. For example, Beijing last had a People's Congress election in 2011; thus, freshmen in our sample, who entered university in 2012, had no opportunity to vote in Beijing—and likely no opportunity to vote at all given their age.<sup>28</sup> Older students also have had more chances to join political organizations such as the Chinese Communist Party; seniors are twice as likely to be in the CCP as freshmen. This is apparent, too,

<sup>28</sup> Note that among provinces that introduced the new curriculum in 2009, all of the students who studied the new curriculum in our sample were freshmen.



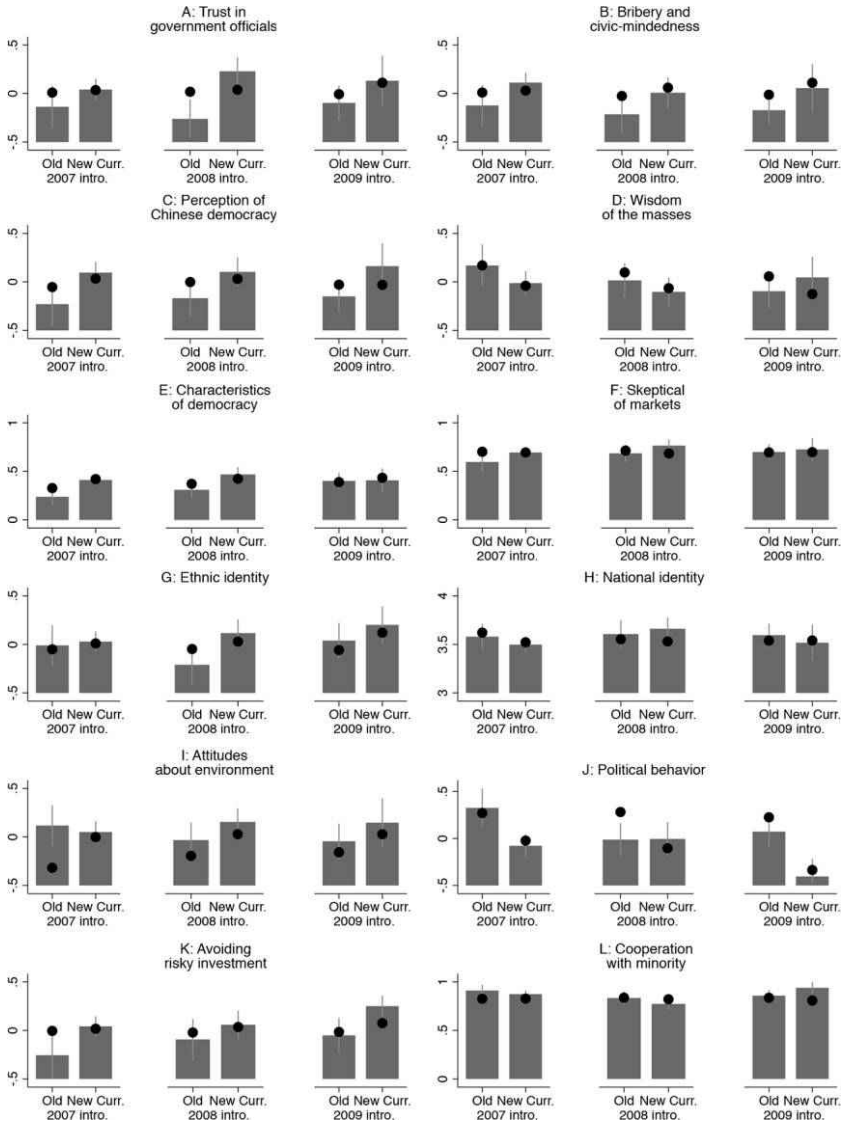


FIG. 3.—Differences in means between students who studied the old curriculum and the new curriculum in the 13 provinces with variation in curriculum in our sample. Provinces are organized into three categories by the year when the new high school curriculum was introduced: either 2007, 2008, or 2009. The 95 percent confidence intervals are indicated by lines. For comparison, the dots show means for the corresponding cohorts within the set of provinces without variation in curriculum among the cohorts we study.

in the political behavior of students from provinces without variation in curriculum in our sample.

In the last row, one can see that students exposed to the new curriculum systematically engage in less risky investment behavior (panel K), consistent with the greater skepticism of markets seen in panel F. There is almost no difference in the investment behavior of students from the same cohorts but coming from provinces without variation in curriculum in our sample. Finally, we do not see consistent differences across curricula in cooperating with minorities (panel L).

Overall, for our broad categories of governance, political institutions, and economic institutions, the raw data suggest that the government may have been able to shift attitudes in the desired direction, while evidence on identity and on environment is more mixed, as is the effect of the new curriculum on behavior associated with the government's desired attitude changes.

### B. Empirical Model

We next examine these differences in a regression framework, including all provinces, and controlling for province and cohort fixed effects. We estimate a generalized difference-in-differences model, as follows:

$$y_{icp} = \sum_c \gamma_c + \sum_p \delta_p + \beta \text{New Curriculum}_{cp} + \varepsilon_{icp}, \quad (1)$$

where  $y_{icp}$  is either an individual survey question or an index variable ( $i$  denotes the individual,  $c$  the high school entry cohort, and  $p$  the province of high school attendance);  $\gamma_c$  and  $\delta_p$  are full sets of cohort and province fixed effects; and  $\beta$  is the coefficient of interest, capturing the effect of the new curriculum, conditional on fixed differences across cohorts and fixed differences across provinces. In our main estimates, we allow idiosyncratic differences,  $\varepsilon_{icp}$ , to be correlated across individuals within a province  $\times$  cohort cell (the level at which the curriculum varies).<sup>29</sup> In addition to this baseline specification, we will estimate additional specifications below: (i) we disaggregate the effects of the new curriculum by cohort, (ii) we include individual-level controls, (iii) we include province  $\times$  cohort-level controls, and (iv) we include a full set of province-specific, cross-cohort trends (in addition to the province and cohort fixed effects).

Our baseline model allows us to address a variety of concerns about our ability to identify the causal effect of the new curriculum. First, one may

<sup>29</sup> We also present  $p$ -values based on clustering at the province level; because of the small number of clusters in this case, we implemented the wild bootstrap procedure (Cameron, Gelbach, and Miller 2008).

be concerned that province-level differences in openness, income levels, and policies may be correlated with attitudes. However, fixed differences across provinces cannot drive our estimated effects of the new curriculum, because we control for province fixed effects and exploit cross-cohort variation within provinces (nonrandom introduction of the curriculum across provinces is discussed further in Sec. V). Similarly, one might worry about the evolution of attitudes across cohorts even in the absence of a change in the curriculum; by including cohort fixed effects, we are able to difference out cross-cohort changes that occur even in the absence of a change in the curriculum.

One might still be concerned about time-varying factors that affect different provinces in different years. For example, one may worry about differences in economic growth rates across provinces or about shocks, such as the Sichuan earthquake of 2008, which might differentially affect different provinces. It is important to emphasize, however, that province $\times$ time-varying shocks are not necessarily province $\times$ cohort-varying shocks: a confounding factor would need to differentially affect different high school entry cohorts within a province to threaten our identification strategy. The cross-cohort variation we exploit is within a very narrow window and is very sharp: individuals entering high school just 1 year apart studied entirely different curricula around the introduction of the new curriculum. This method of introducing the new curriculum considerably reduces concerns about omitted variables, as many time-varying, province-specific shocks seem unlikely to have very different effects across adjacent cohorts of students and so will be absorbed by the province fixed effects.

Finally, even unobserved factors that do vary at the province $\times$ cohort level will often affect adjacent cohorts within the same province smoothly rather than sharply. Our specification that includes controls for province-specific, cross-cohort trends is able to capture smooth, province-specific changes in attitudes across cohorts. This specification is especially demanding as it attributes to the new curriculum only the “jump” in attitudes relative to the cross-cohort trend. Thus, although the introduction of the new curriculum was not random across time and space, many differences across provinces and across cohorts—other than the curriculum change—are likely to be absorbed by our control variables, leaving us more confident that we are able to identify the causal effect of the new curriculum.

### *C. Balance of Student Characteristics*

We present summary statistics for the survey sample in table 2, columns 1 and 2, and show the mean characteristics of students by curriculum (old,

TABLE 2  
SUMMARY STATISTICS

VARIABLE	ALL		OLD CURRICULUM		NEW CURRICULUM		UNCONDITIONAL		CONDITIONAL	
	Mean (1)	Standard Deviation (2)	Mean (3)		Mean (4)		Difference (5)	$\rho$ -Value (6)	Difference (7)	$\rho$ -Value (8)
	A. Personal									
Age	.205	1.4	21.1		20.1		-1.0	.000	-.1	.228
Height	169.6	8.2	169.3		169.8		.5	.172	.1	.949
Han	.916	.277	.901		.923		.021	.113	.006	.791
Female	.459	.498	.441		.467		.026	.277	-.030	.523
Urban	.782	.413	.772		.787		.015	.453	.022	.533
Number of siblings	.402	.812	.473		.369		-.105	.008	-.022	.727
	B. Parents									
Father high education	.787	.410	.779		.790		.012	.561	.041	.195
Father urban	.744	.436	.737		.748		.012	.583	-.013	.702
Father nonagriculture	.852	.355	.829		.863		.034	.048	-.002	.941
Mother high education	.727	.446	.696		.741		.045	.040	.048	.155
Mother urban	.745	.436	.737		.748		.012	.583	.007	.848
Mother nonagriculture	.831	.375	.814		.838		.024	.189	.011	.694
Parents in CCP	.543	.499	.544		.542		-.002	.931	-.000	.996
	C. Education									
Taken <i>gaokao</i>	.874	.332	.884		.869		-.015	.361	-.008	.732
High school humanities track	.308	.462	.314		.304		-.010	.680	-.020	.583
Social science major	.329	.470	.325		.331		.006	.781	-.013	.697
CCP Youth League member	.981	.135	.982		.981		-.002	.808	.007	.559
	D. Politics									
	E. New Curriculum									
New curriculum	.683	.465	0		1		1	...	...	...

NOTE.—Columns 5 and 6 report raw (unconditional) differences in means across curricula and the  $\rho$ -value for a *t*-test of differences in means. Columns 7 and 8 report differences conditional on cohort and province fixed effects. Number of observations: 1,954 (619 old curriculum, 1,335 new curriculum).

then new) in columns 3 and 4. We next check for balance of observable characteristics among survey respondents across new and old curricula. A lack of balance could arise from differential selection into the survey sample or from shifts in matriculation into Peking University as a result of the curriculum change (or some other province  $\times$  cohort-specific shock).

In table 2, columns 5 and 6, we present the raw differences and the  $p$ -values testing for the statistical significance of these differences in characteristics of students who studied under the old and new curricula in our sample. One can see in the table that there are significant differences across the two groups. However, it is worth emphasizing that this unconditional imbalance is to be expected. Students who studied under the new curriculum are younger on average (the new curriculum was introduced later in time) and come from provinces where the curriculum was introduced earlier; and there was no random assignment of introduction years across provinces, so differences across students from different provinces appear as well (e.g., the fraction of Han Chinese).

In table 2, columns 7 and 8, we show differences between students in the new and old curricula, conditional on province and cohort fixed effects, and the  $p$ -values testing for the statistical significance of these conditional differences. (We estimate eq. [1] with student characteristics as outcomes and present the coefficient on the new curriculum dummy variable.) One can see that accounting for average characteristics in the province of origin and accounting for average characteristics of a cohort, those individuals in our sample who studied under the new curriculum look statistically indistinguishable on observable characteristics from those who studied under the old curriculum.

#### *D. Regression Estimates of the Effect of the New Curriculum*

We begin our regression analysis by estimating our difference-in-differences model in equation (1). But rather than pool the students who studied under the old curriculum and new curriculum into two coarse categories (old curriculum and new), we allow students to have different attitudes depending on the “distance” between their cohort and the first cohort that studied under the new curriculum in their province. This allows us to examine whether outcomes differed across cohorts even prior to the curriculum reform (which would call into question our identification strategy) and also to verify that there is a sharp change in outcomes precisely with the first cohort exposed to the new curriculum. We treat the last cohort studying under the old curriculum in a particular province as the omitted category and compare it to the cohorts entering high school 2 or more years before the curriculum change, the first cohort that studied the new curriculum, and the cohorts that entered high school 2 or more years after the new curriculum was introduced.

In figure 4, we present coefficients and 95 percent confidence intervals on the dummy variables indicating a student's cohort relative to the introduction of the new curriculum in his or her province, for each of the index variables in our six broad outcome categories. In the governance, political institutions, and economic institutions graphs, one can see clear, significant jumps in outcomes—shifts in attitudes in the Chinese government's desired direction—moving from the last cohort under the old curriculum to the first cohort that studied under the new curriculum. We do not find significant differences in identity, and attitudes toward the environment move in the direction opposite to the one hypothesized. Our findings for behavior are mixed, with the "avoiding risky investment" outcome sharply differing across curricula (the increase in the outcome reflects less risky investment among students exposed to the new curriculum), while political behavior and cooperation with minorities do not differ much across cohorts.

Figure 4 also allows us to examine whether attitudes were trending in the direction desired by the Chinese government even prior to the introduction of the new curriculum. One can see that there is almost no evidence of meaningful pretrends in figure 4; indeed, it is almost never the case that students who entered high school 2 or more years prior to the curriculum change have attitudes or behavioral outcomes that significantly differ from those of students in the final cohort who studied under the old curriculum. One can also see that outcomes are quite similar for all cohorts that studied under the new curriculum: the sharp differences in attitudes we find across curricula are not limited either to the first year of introduction or to the students in our sample who are youngest, and thus closest to their exposure to the high school curriculum.

We next estimate the standard difference-in-differences model, equation (1), examining differences between students exposed to the new and old curricula, controlling for province and cohort fixed effects. Figure 5 shows the coefficient estimate on the new curriculum dummy variable from estimating equation (1), as well as the 95 percent confidence interval, for each of the individual survey questions presented in Section III, and the index variables analyzed in figures 3 and 4. For ease of presentation, we standardize each outcome variable and we plot the absolute value of the coefficient; coefficients with positive signs are denoted with closed symbols, while coefficients with negative signs are denoted with open symbols (we also indicate the sign of the estimate in brackets). As noted above, responses are coded such that a positive effect indicates a movement toward the Chinese government's desired attitudes. The figure also includes  $p$ -values (adjusted using the false discovery rate procedure) from a test that the coefficient on new curriculum equals zero.

Scanning the dot plot, one can see quite a bit of consistency within the categories and subcategories that we examine: across a wide range

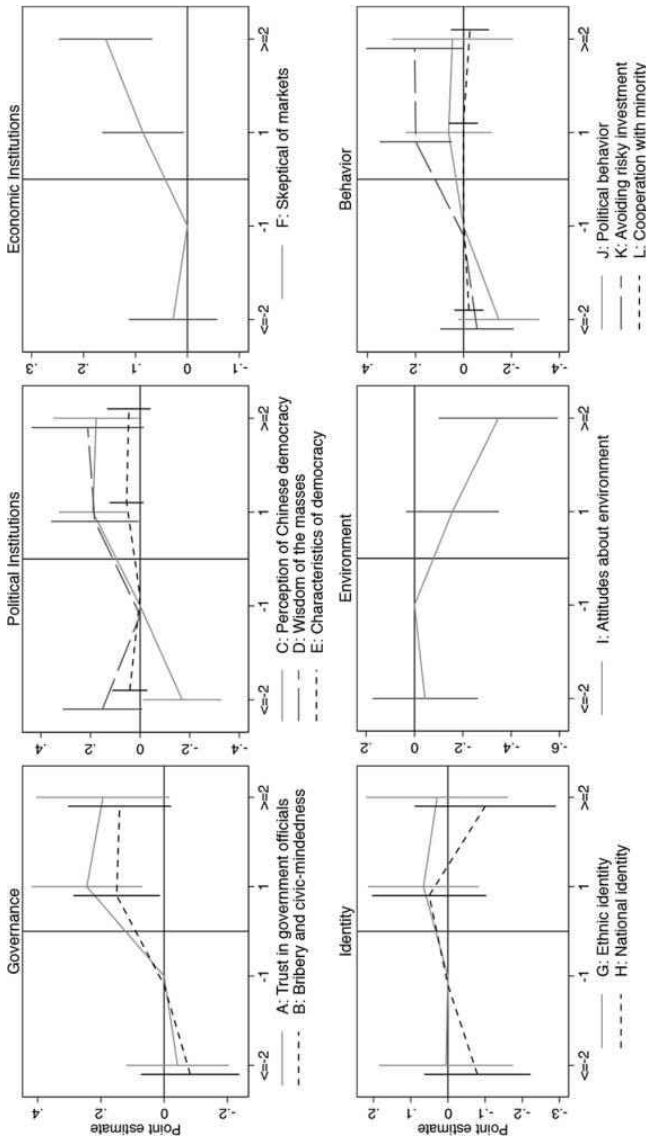


FIG. 4.—Estimated effects of the new curriculum by students' cohort relative to the introduction of the new curriculum. Each figure shows coefficient estimates and 95 percent confidence intervals from regressions of each outcome category's z-score (or individual survey question) on province and cohort fixed effects, as well as a set of dummy variables indicating the timing of the student's entry to high school relative to the introduction of the new curriculum in his or her province. Standard errors used to calculate the 95 percent confidence intervals are clustered at the province  $\times$  cohort level. The " $\leq 2$ " category entered 2 years or more before the first cohort exposed to the new curriculum; the " $-1$ " category was the final high school cohort under the old curriculum (and this is the omitted category); the " $1$ " category is the first cohort in a province that studied under the new curriculum (i.e., the cohort entering high school immediately following the  $-1$  cohort); and the " $\geq 2$ " category includes students who were either the second cohort under the new curriculum or beyond.



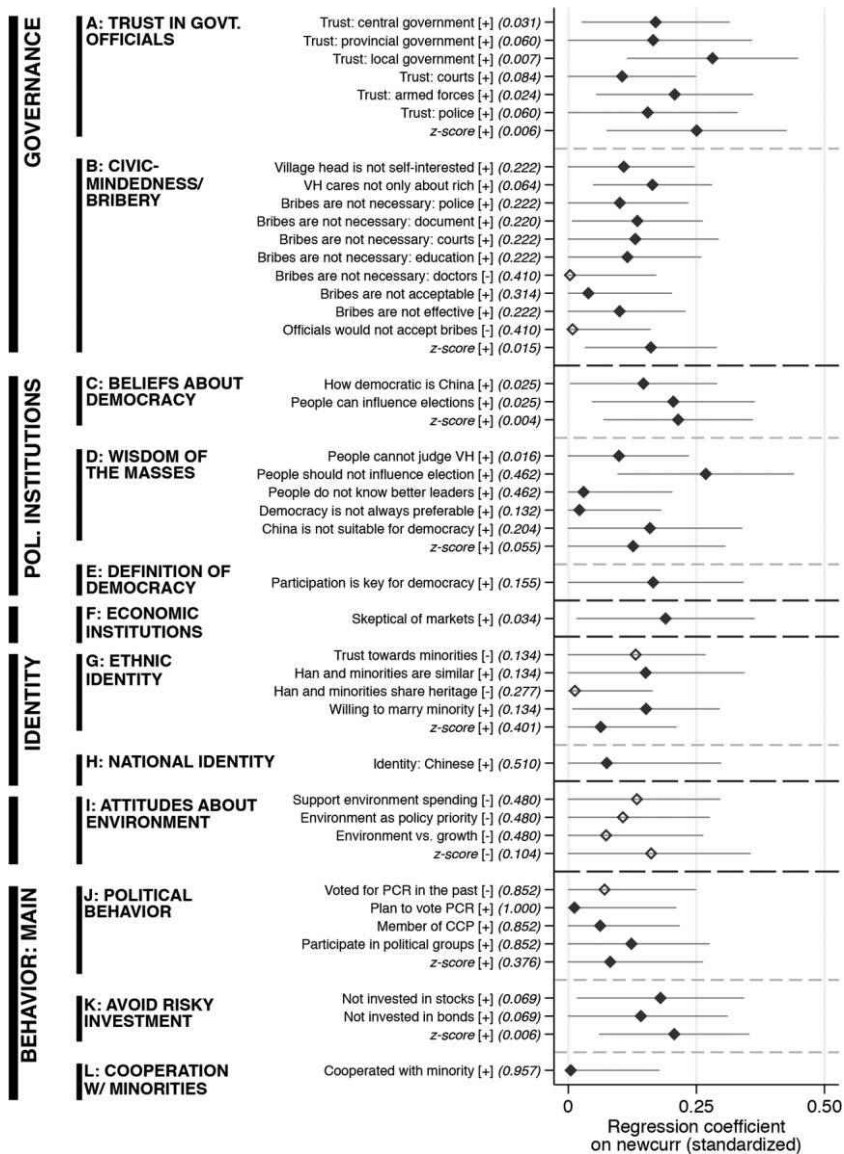


FIG. 5.—Dot plot showing effect of the new curriculum on all questions within six broad categories of outcomes. Figure shows estimated coefficients on the new curriculum dummy variable from a regression of the (standardized) outcome listed on new curriculum and province and cohort fixed effects. Coefficients are presented as absolute values; coefficients with positive signs are denoted with closed symbols, while coefficients with negative signs are denoted with open symbols (the sign of the coefficient is indicated in brackets as well). The figure also shows 95 percent confidence intervals calculated using standard errors clustered at the province  $\times$  cohort level (censored below at zero) and  $p$ -values calculated using the false discovery rate procedure (in parentheses). Color version available as an online enhancement.

of questions about trust in government officials, we find significant increases in trust associated with study of the new curriculum. One can also see that students view government officials as more civic-minded (less self-interested and less likely to serve the rich and powerful) and see bribery as less necessary across a range of domains. Note that in some cases, individual results are not statistically significant when we adjust  $p$ -values to reflect our testing of multiple hypotheses, but the consistency of the signs of the effects and the significant index variables are suggestive of meaningful attitude changes.

Continuing to move down the dot plot, one can see that students view China as more democratic if they studied the new curriculum; they view people's participation as a defining characteristic of democracy (albeit not statistically significantly so), and they often express greater skepticism of the wisdom of the masses, or "unconstrained democracy." The finding that students exposed to the new curriculum both see China as more democratic and are more cautious about unconstrained democracy matches what we see in the new curriculum textbooks' content.

Attitudes toward the market were elicited in only one survey question, which shows a significant shift toward greater skepticism of unconstrained markets—consistent with the new curriculum textbooks' content. Attitudes toward ethnic minorities show mixed differences across curricula. Students express an identity that is more "Chinese" than "world citizen" if they study the new curriculum, but the result is not statistically significant. Next, one can see that attitudes toward the environment consistently move in the opposite direction from that intended by the government, though not statistically significantly so. Finally, there are positive, but insignificant, effects of the new curriculum on political behavior and cooperation with minorities and a positive, significant effect on avoiding risky investments.

In table 3, we present the analysis shown in figure 5 (but note that outcomes are not standardized), as well as some additional information. We show coefficient point estimates, standard errors clustered at the province $\times$ cohort level, standard  $p$ -values and FDR-adjusted  $p$ -values, means and variances of the dependent variables, and estimated persuasion rates (we discuss persuasion rates in Sec. V below). As can also be seen in figure 5, along the three dimensions that the curriculum significantly affected (views on governance, political institutions, and economic institutions), studying under the new curriculum is associated with a change in attitudes of around 10–20 percent of a standard deviation.

We also include in table 3 an important falsification exercise. A natural question that arises in interpreting our finding of a significant effect of the new curriculum on trust in government officials is whether the new curriculum was associated with greater trust more broadly rather than specifically greater trust in government officials. We thus examine students'

TABLE 3  
ESTIMATED EFFECTS OF THE NEW CURRICULUM ON ALL OUTCOMES

	Beta (1)	Standard Error (2)	<i>p</i> -Value (3)	FDR-Adjusted <i>p</i> -Value (4)	Mean Dependent Variable (5)	Standard Deviation Dependent Variable (6)	Persuasion Rate (7)
CATEGORY: GOVERNANCE							
A. Trust in Government Officials							
Trust: central government	.127	[.054]	.022	.031	3.992	.743	.384
Trust: provincial government	.126	[.075]	.093	.060	3.627	.763	.197
Trust: local government	.229	[.069]	.001	.007	3.174	.813	.466
Trust: courts	.078	[.055]	.154	.084	3.640	.746	.132
Trust: armed forces	.172	[.064]	.009	.024	3.825	.828	.207
Trust: police	.122	[.070]	.085	.060	3.493	.789	.099
z-score index	.247	[.088]	.006	...	.014	.986	...
Trust: nongovernmental institutions	-.001	[.093]	.992	...	.008	.986	...
B. Bribery and Civic-Mindedness							
Village head is not self-interested	.095	[.061]	.125	.222	3.112	.874	.106
Village head cares not only about rich	.147	[.053]	.006	.064	3.457	.898	.304
Bribes are not necessary: police	.102	[.069]	.141	.222	4.154	1.016	n/a
Bribes are not necessary: documents	.112	[.054]	.040	.220	4.430	.835	.168
Bribes are not necessary: courts	.150	[.095]	.116	.222	3.986	1.150	.089
Bribes are not necessary: education	.136	[.086]	.116	.222	3.519	1.178	.045
Bribes are not necessary: doctors	-.004	[.105]	.969	.410	3.442	1.235	n/a
Bribes are not acceptable	.018	[.038]	.637	.314	.685	.465	.055
Bribes are not effective	.040	[.026]	.127	.222	.200	.400	.048
Officials would not accept bribes	-.002	[.018]	.914	.410	.056	.230	n/a
z-score index	.161	[.065]	.015	...	-.001	.999	...

TABLE 3 (Continued)

	Beta (1)	Standard Error (2)	p-Value (3)	FDR-Adjusted p-Value (4)	Mean Dependent Variable (5)	Standard Deviation Dependent Variable (6)	Persuasion Rate (7)
CATEGORY: POLITICAL INSTITUTIONS							
C. Perception of Chinese Democracy							
How democratic is China	.246	[.122]	.047	.025	5.200	1.678	.175
People can influence elections	.199	[.078]	.012	.025	3.206	.972	.279
z-score index	.213	[.074]	.004	...	.010	.994	...
D. Wisdom of the Masses							
People cannot judge village head	.244	[.079]	.003	.016	2.425	.908	.418
People should not influence elections	.021	[.063]	.735	.462	1.719	.710	.006
People do not know better leaders	.020	[.073]	.789	.462	2.350	.902	.021
Democracy is not always preferred	.074	[.042]	.085	.132	.690	.462	.205
China is not suitable for democracy	.225	[.162]	.169	.204	4.970	1.779	.063
z-score index	.164	[.089]	.067	...	-.009	.992	...
E. Characteristics of Democracy							
Participation is key for democracy	.048	[.034]	.155	...	.394	.489	.076
CATEGORY: ECONOMIC INSTITUTIONS							
F. Skeptical of Markets							
Skeptical of markets	.087	[.041]	.034	...	.697	.460	.240
CATEGORY: IDENTITY							
G. Ethnic Identity							
Trust toward minorities	-.096	[.050]	.059	.134	3.581	.728	n/a
Han and minorities are similar	.062	[.040]	.126	.134	.787	.410	.242
Han and minorities share heritage	-.005	[.030]	.866	.277	.185	.388	n/a
Willing to marry minority	.054	[.026]	.040	.134	.849	.359	.288
z-score index	.063	[.075]	.401	...	.010	.993	...

		H. National Identity		
Identity: Chinese	.053	[.081]	.510	... 3.553 .710 .079
CATEGORY: ENVIRONMENT				
I. Attitudes about Environment				
Support environment spending	-.033	[.021]	.108	.480 .933 .250 n/a
Environment as policy priority	-.034	[.028]	.219	.480 .115 .320 n/a
Environment vs. growth	-.034	[.044]	.446	.480 .695 .461 n/a
z-score index	-.162	[.099]	.104	... .005 1.004 ...
CATEGORY: BEHAVIOR				
J. Political Behavior				
Voted for PCR in the past	-.035	[.045]	.437	.852 .461 .499 n/a
Plan to vote for PCR	.006	[.051]	.906	1.000 .490 .500 .012
Member of CCP	.027	[.035]	.431	.852 .266 .442 .037
Participation in political groups	.029	[.018]	.115	.852 .058 .234 .030
z-score index	.082	[.092]	.376	... .001 1.002 ...
K. Avoiding Risky Investment				
Not invested in stocks	.055	[.025]	.032	.069 .895 .307 .386
Not invested in bonds	.026	[.016]	.102	.069 .965 .183 .495
z-score index	.207	[.074]	.006	... .004 1.001 ...
L. Cooperation with Minority				
Cooperated with minority	.002	[.032]	.957	... .841 .366 .011

NOTE.—All regressions include a full set of province and cohort fixed effects (not reported). Robust standard errors are in brackets, clustered at the province×cohort level. The z-score index (weighting by the inverse covariance of the standardized outcomes) and the FDR-adjusted *p*-values are computed following Anderson (2008). For nonbinary dependent variables, persuasion rates are based on the binary analogue (a dummy taking the value one for outcomes above the median value). Persuasion rates are not calculated when outcomes did not move in the direction desired by the Chinese government or when the median value of the outcome equals the maximum possible value of the outcome.

responses to questions about their trust in a variety of nongovernmental entities (nongovernmental organizations, banks, foreign investors) and about their trust in people in general. In the bottom row of panel A in table 3, one can see that an aggregate index of trust in these nongovernmental entities and individuals is not affected by the introduction of the new curriculum (the point estimate is very close to zero and not significant), reinforcing our interpretation that the content in the new curriculum specifically increased trust in Chinese government officials.

## V. Discussion

### A. Robustness Checks

We next explore the robustness of our results for the six outcome categories examined; we show robustness specifications only for the  $z$ -score indices constructed to summarize each category's outcomes. As above, if a category includes only a single question, we examine that rather than an index variable.

In table 4, panel A, we present our baseline estimates of the effects of the new curriculum using a parsimonious specification that includes only province and cohort fixed effects. In addition to our coefficient estimates and standard errors clustered at the province  $\times$  cohort level, we add (in parentheses in the fourth row)  $p$ -values based on clustering at the province level; because of the small number of clusters in this case, we implemented the wild bootstrap procedure (Cameron et al. 2008). For comparison,  $p$ -values from standard errors clustered at the province  $\times$  cohort level are presented in the row above. One can see that changing the level of clustering does not affect our statistical inferences.

Because we have a relatively small number of treated observations in our sample, we also make our statistical inferences in an alternative manner, by comparing the treatment effect we estimate for each index variable to the distribution of placebo treatment effects we estimate when randomly assigning new curriculum introduction dates to provinces. To be precise, we randomly assign new curriculum introduction dates to provinces, with the dates drawn from the actual set of introduction dates of the new curriculum, without replacement (so in a given year, the same number of provinces have the placebo new curriculum introduced as had the actual new curriculum introduced, but the placebo assignment will be made to a random selection of provinces). We randomly draw 10,000 sets of placebo treatment assignments and estimate equation (1) for each of the six main index variable categories. In appendix G, figure G.3, we plot the distribution of  $t$ -statistics from the 10,000 estimated placebo treatment effects for each outcome and mark the location of the  $t$ -statistic of the actual treatment effect within the distribution. We also report the

share of the placebo *t*-statistics that is larger than the actual statistic in absolute value. One can view this measure as analogous to a *p*-value; across outcomes, the inferences drawn are very similar to the standard regressions.

We next examine the robustness of the estimated effects of the new curriculum to the inclusion of additional control variables. We begin by adding to our baseline specification student-level controls for the individual and household characteristics reported in panels A–D of table 2.<sup>30</sup> In table 4, panel B, one can see that including these individual-level controls does not affect our findings.<sup>31</sup>

An alternative approach to studying differences in student characteristics across curricula is to use our students' background characteristics (the same used as controls in table 4, panel B) to predict the z-score index variables for our six categories of outcomes and test whether predicted outcomes differ across curricula. In appendix G, table G.8, we present the estimated coefficient on the new curriculum dummy from estimating equation (1) with predicted index variables as the outcomes. In every case, the estimated effect of the new curriculum on the predicted outcomes based on observables is close to zero and statistically insignificant.

Another important question about our analysis is whether the introduction of the new curriculum coincided with other provincial variation that might affect attitudes at the province  $\times$  cohort level. One possibility is that school spending may have been greater for those cohorts in a province exposed to the new curriculum; if so, then some of our effects may be driven by school spending rather than changes in the curriculum's content. We thus control for provincial spending on secondary education at the province  $\times$  cohort level (calculated as a province's average level of spending during the 3 years of senior high school for each cohort).<sup>32</sup> One can see in table 4, panel C, that the estimated effects of the new curriculum controlling for spending on secondary education at the province  $\times$  cohort level are nearly identical to the baseline estimates.

Another possibility is that students who experienced important political transitions while in high school may have differing views on governance, political institutions, and so forth. To examine this possibility, we collected information on all of the transitions of provincial governors and provincial party secretaries (from <http://baike.baidu.com> and

<sup>30</sup> The one exception is the indicator that a student studied the humanities track in high school, because it is missing for more than 300 students who did not take the *gaokao* exam as part of their admission to Peking University. Note that we do include a dummy for whether a student took the *gaokao* exam.

<sup>31</sup> We also examine whether differences in students' personalities may affect our results, estimating our baseline model for our six broad outcome categories, controlling for an individual's "Big 5" personality traits z-scores, and our results are unchanged (see app. G, table G.7).

<sup>32</sup> Data are taken from the *China Educational Finance Statistical Yearbook*, published by the Finance Department, Ministry of Education of the People's Republic of China (2004–12).



TABLE 4  
ROBUSTNESS OF BASELINE REGRESSIONS

	DEPENDENT VARIABLE											
	A.	B.	C.	D.	E.	F.	G.	H.	I.	J.	K.	L.
	Trust in Govt. Officials (1)	Bribery and Civic- Mindedness (2)	Perception of Chinese Democracy (3)	Wisdom of the Masses (4)	Characteristics of Democracy (5)	Skeptical of Markets (6)	Ethnic Identity (7)	National Identity (8)	Attitudes about Environment (9)	Political Behavior (10)	Avoid Risky Investment (11)	Cooperation with Minority (12)
	A. Baseline											
New curriculum	.247 [.088]	.161 [.065]	.213 [.074]	.164 [.089]	.048 [.034]	.087 [.041]	.063 [.075]	.053 [.081]	-.162 [.099]	.082 [.092]	.207 [.074]	.002 [.032]
<i>p</i> -value	(.006)	(.015)	(.004)	(.067)	(.155)	(.034)	(.401)	(.510)	(.104)	(.376)	(.006)	(.957)
Wild bootstrap <i>p</i> -value	(.062)	(.048)	(.030)	(.190)	(.258)	(.074)	(.550)	(.568)	(.166)	(.480)	(.054)	(.926)
	B. With Individual-Level Controls											
New curriculum	.243 [.084]	.163 [.066]	.194 [.073]	.169 [.089]	.044 [.033]	.080 [.040]	.074 [.073]	.057 [.080]	-.156 [.102]	.107 [.092]	.195 [.072]	.005 [.030]
	C. With Province×Cohort-Level Controls											
New curriculum	.248 [.088]	.164 [.067]	.216 [.074]	.159 [.089]	.050 [.033]	.085 [.039]	.060 [.075]	.062 [.071]	-.160 [.098]	.090 [.085]	.209 [.074]	.004 [.031]

D. Controlling for 2003 Provincial GRP × Cohort Fixed Effects												
New curriculum	.262 [.097]	.125 [.073]	.159 [.079]	.196 [.097]	.046 [.038]	.084 [.041]	.098 [.083]	.072 [.078]	-.088 [.111]	.168 [.091]	.199 [.083]	-.011 [.035]
E. Province-Specific Cohort Trends												
New curriculum	.221 [.095]	.209 [.088]	.118 [.074]	.311 [.121]	.068 [.039]	.090 [.050]	-.000 [.087]	.171 [.082]	-.114 [.115]	-.024 [.100]	.272 [.099]	.021 [.030]
Mean dependent variable	.014	-.001	.010	-.009	.394	.697	.010	3.553	.005	.001	.004	.841
Standard deviation dependent variable	.986	.999	.994	.992	.489	.460	.993	.710	1.004	1.002	1.001	.366

NOTE.—All regressions include a full set of province and cohort fixed effects (not reported). Panel B controls for the individual and household characteristics reported in panels A–D of table 2 (except for the high school track). Panel C controls for spending on secondary education at the province × cohort level. Panel D includes an interaction between a province's gross regional product (GRP) in 2003 and a full set of cohort fixed effects. Panel E includes a cohort trend interacted with a full set of province fixed effects. Robust standard errors are in brackets, clustered at the province × cohort level. The wild bootstrap *p*-value is calculated allowing for clustering at the province level. Median number of observations across columns: 1,705 (panel A, panels C–E); 1,487 (panel B). Number of clusters: 116 (29 with wild bootstrap).

<http://www.wikipedia.org>) that occurred while students in our sample were in high school. We then estimate our baseline specification, but controlling for either the experience of a provincial governor turnover or a provincial party secretary turnover while a student was in high school. In appendix G, table G.9, one can see that these controls do not affect our results.

More generally, one might be interested in the determinants of a province adopting the new curriculum in a particular year and be concerned that these factors may affect student attitudes. We explore this question in detail in table G.10, using two approaches: first, we treat China's provinces as a cross section and allow province characteristics in 2003 (just prior to the first wave of introduction) to determine the timing of adoption; second, we consider a panel (observations at the province  $\times$  year level) with province characteristics in a given year determining new curriculum adoption in the following year. For each data set we estimate ordinary least squares models and Cox proportional hazard models. Our most robust finding is that greater 2003 province income is quite predictive of earlier introduction of the new curriculum (as are other variables correlated with income, such as fiscal revenues and employment). Educational variables are generally less predictive, except for the percentage of primary school students enrolling in secondary school, which again is correlated with income.

To determine whether higher 2003 incomes were associated with systematic differences in attitudes across cohorts, in table 4, panel D, we present estimated effects of the new curriculum but controlling for the interaction between a province's 2003 gross regional product per capita interacted with the four cohort fixed effects. One can see that including these controls does not affect our findings.

Another concern is that differing trends in attitudes across cohorts in different provinces may play some role in generating the differences in attitudes we attribute to the new curriculum. To address this concern, we estimate equation (1) but include a full set of province fixed effects interacted with cohort-level trends. That is, we allow each province to have its own (linear) trend in attitudes across cohorts, and we identify the effect of the new curriculum as a deviation from the trend. In table 4, panel E, one can see that controlling for province-specific cross-cohort trends does not qualitatively affect any of our estimates of the effects of the new curriculum.

A final concern about our baseline specification regards our sample's composition. Some provinces do not have any variation in curriculum studied among the four cohorts in our sample, but these provinces are included in our baseline estimates (though they were excluded from our comparison of means in fig. 3). One might wish to estimate the effects of the new curriculum on a balanced panel that includes only provinces in which we observe variation in curriculum. We thus estimate the effect

of the new curriculum using a “short panel” that includes only students from the last cohort under the old curriculum and the (adjacent) first cohort of the new curriculum from the 13 provinces for which we observe students from both of these cohorts in our sample. Using this alternative data set, our results are very similar to those estimated using the entire set of province  $\times$  cohort cells (see table G.11).

### *B. Addressing Additional Questions about Our Findings*

*Concerns about the online survey response rate.*—An important question about our estimates is whether they may have been driven by unusual selection into our online survey. Above we noted that response rates between students under the two curricula are statistically indistinguishable and that student characteristics in our sample are balanced across curricula, suggesting that students’ self-selection into our survey likely does not explain our results. Still one might wonder whether the sample on which we estimate the effect of the new curriculum is very atypical, even relative to the rest of Peking University.

As an additional check that the treatment effects we estimate from the online survey do not greatly differ from what we would find among nonrespondents at Peking University, we conducted a paper and pencil follow-up survey using in-person recruitment in June and July 2014 (see app. E.5 for a more detailed description of the follow-up survey). The follow-up survey was conducted by a team of Peking University undergraduates, who recruited survey participants in the Peking University dorms and handed out a paper version of the same survey questionnaire as was used online (to be completed individually and privately). The recruiters invited 446 students who had not completed the online survey to complete the paper survey; the response rate in the follow-up survey was 78 percent, for a total of 347 respondents.

We estimate our baseline specification on the follow-up survey sample, examining the index variable outcomes in our 12 subcategories, and find that in eight of 12 cases the signs of the estimated effects of the new curriculum match our baseline estimates (compare table 5, panels A and B). Results for governance, economic institutions, and the environment are both qualitatively and quantitatively very similar between the main survey and the follow-up. Thus, although there are two categories (views of the “wisdom of the masses” and political behavior) for which we find quite different effects of the new curriculum in the follow-up survey, we are reassured that the follow-up survey results generally match those in the main survey.

*Concerns about differential selection into Peking University following curriculum change.*—Another concern is that students with preexisting differences in political attitudes were differentially selected into Peking University

TABLE 5  
SELECTION INTO THE SURVEY AND INTO PEKING UNIVERSITY

		DEPENDENT VARIABLE											
		A. Trust in Govt. Officials (1)	B. Bribery and Civic-Mindedness (2)	C. Perception of Chinese Democracy (3)	D. Wisdom of the Masses (4)	E. Characteristics of Democracy (5)	F. Skeptical of Markets (6)	G. Ethnic Identity (7)	H. National Identity (8)	I. Attitudes about Environment (9)	J. Political Behavior (10)	K. Avoid Risky Investment (11)	L. Cooperation with Minority (12)
A. Baseline													
New curriculum	.247 [.088]	.161 [.065]	.213 [.074]	.164 [.089]	.048 [.034]	.087 [.041]	.063 [.075]	.053 [.081]	-.162 [.099]	.082 [.092]	.207 [.074]	.002 [.032]	
B. Follow-Up Survey Only													
New curriculum	.171 [.235]	.196 [.170]	.266 [.300]	-.372 [.306]	-.002 [.099]	.085 [.106]	.441 [.218]	-.187 [.166]	-.149 [.255]	-.126 [.198]	.032 [.208]	.023 [.092]	
C. Science Track Students Only													
New curriculum	.304 [.099]	.238 [.088]	.212 [.102]	.144 [.103]	.128 [.047]	.036 [.056]	.129 [.101]	.108 [.100]	-.120 [.114]	.048 [.132]	.149 [.092]	-.015 [.044]	
D. Humanities Track Students Only													
New curriculum	.454 [.150]	.264 [.145]	.513 [.169]	.207 [.171]	-.050 [.072]	.209 [.071]	-.015 [.149]	-.105 [.101]	.022 [.150]	.220 [.165]	.336 [.156]	.093 [.053]	

NOTE.—All regressions include a full set of province and cohort fixed effects (not reported). Robust standard errors are in brackets, clustered at the province×cohort level. Median number of observations across columns: 329.5 (panel B); 1,041 (panel C); 455 (panel D). Median number of clusters across columns: 81.5 (panel B); 115 (panel C); 110 (panel D).

across the two curricula: students who had political attitudes more concordant with the new curriculum's ideological aims may have scored better on the *gaokao* college entrance exam and thus been admitted to the university in greater numbers following the curriculum change. One check of whether this was likely an important driver of our results is to examine the effects of the new curriculum on students who were enrolled in the science track in high school. These students were examined on the politics material, but the test was much lower-stakes than that taken by students in the humanities track and would not have played a first-order role in determining their university admissions.

We thus split the sample by students' high school subject track.<sup>33</sup> Among the subsample of students who studied the science track in high school, the effects of the new curriculum are qualitatively and quantitatively very similar to our main results (see table 5, panel C). The one notable difference between the main results and those estimated on the science track students is that the effect of the new curriculum on skepticism toward free markets is no longer statistically significant (though the coefficient is positive). When we examine the subsample of humanities track students, we again find results that are qualitatively very similar to our baseline findings (see table 5, panel D).

*Checking implementation of the curriculum reform and students' textbook recall.*—To what extent was the curriculum reform implemented as designed, with the new textbooks introduced according to our assignment of province  $\times$  cohort cells? As a check that our province  $\times$  cohort-level assignment of students to curricula is accurate—and as a check that students have some recollection of their high school textbook—we examine students' responses to a survey question (asked at the end of our survey) in which we presented them with images of the covers of politics textbooks from the old and new curricula and asked them to identify the textbook they used (allowing them to indicate that they did not remember which textbook was theirs). Remarkably, we find that nearly all students in our survey—around 94 percent—identified as their high school textbook the one that we would predict on the basis of the introduction dates by province presented in figure 1. We also estimate our baseline econometric model of equation (1), predicting students' choice of the new curriculum politics textbook (as opposed to selecting the old textbook, reporting that they did not remember their textbook, or reporting a textbook not shown). The results in table 6, column 1, confirm that the curriculum reform was rolled out according to what we expected and indicate that the vast majority of students recall their high school textbook.

<sup>33</sup> Around 15 percent of the students in our sample could not be assigned to a subject track because they did not take the *gaokao* (our assignment of track was based on a question we asked about the subjects a student was examined on in the *gaokao*).

TABLE 6  
 ADDITIONAL TESTS: IDENTIFYING TEXTBOOKS, FACTUAL KNOWLEDGE,  
 AND TEACHING PRACTICES

	DEPENDENT VARIABLE					
	New Textbook Cover (1)	Factual Knowledge			z-Score Index (Teaching Style) (5)	Teaching Focused on <i>gaokao</i> (6)
		Aware: Village Head Elected (2)	Aware: Able to Vote PCR (3)	z-Score Index (Factual Knowledge) (4)		
New curriculum	.865 [.015]	.079 [.034]	.038 [.028]	.198 [.075]	-.007 [.083]	.108 [.069]
Observations	1,691	1,754	1,755	1,754	1,691	1,691
Mean dependent variable	.659	.770	.870	.006	-.007	1.937
Standard deviation dependent variable	.474	.421	.336	.997	1.004	.867

NOTE.—All regressions include a full set of province and cohort fixed effects (not reported). Robust standard errors are in brackets, clustered at the province×cohort level.

*Effects of the curriculum on students' factual knowledge.*—It is also of interest to examine whether purely descriptive (rather than persuasive) textbook content that differed across curricula generated persistent differences in students' knowledge. In addition to ideological content, the new curriculum included new factual content regarding Chinese political institutions. We next examine whether factual details of China's political system were differentially known by individuals who studied under the new curriculum.

Our survey included questions asking students whether they were aware of elections for the position of village head and for the position of People's Congress representative. Discussion of these elections is much more extensive in the new curriculum textbook than in the old curriculum textbook (as seen in table 1, the word "election" appears two times in the old curriculum and 120 times in the new). We thus estimate our baseline regression model, with the two "election awareness" variables as outcomes; one can see in table 6, columns 2 and 3, that study of the new curriculum is, indeed, strongly associated with greater knowledge of political institutions covered in the new curriculum textbooks. An index variable outcome based on these two factual questions also shows a significant effect of the new curriculum on students' knowledge of Chinese political institutions (table 6, col. 4).

An important question regarding the nature of the political persuasion we observe is to what extent it was based on the provision of new information, as opposed to purely ideological, persuasive content. On the one hand, it is clear that there was new, purely ideological content introduced in the new curriculum; this can be seen in many of the quotes from



the new curriculum's textbooks above. On the other hand, our findings here suggest that factual additions to the new curriculum may have affected students' beliefs and attitudes as well.

*The impact of changes in instructional methods.*—A final question about the implementation of the curriculum reform is whether, in addition to changing the content of textbooks, the curriculum reform changed teaching practice. Indeed, under the reform, class discussions were to be encouraged, and there was to be a reduced emphasis on the rote memorization of material by students. One might be concerned that shifts in teaching practice may have directly affected students' attitudes or affected students' willingness to think independently or to express certain opinions, thus affecting responses to our survey (see, e.g., Algan, Cahuc, and Shleifer [2013] on the importance of teaching practices in shaping students' beliefs and attitudes). However, as noted above, there is a widespread perception in China that teaching practices did not change as a result of the reform: teachers' and students' incentives were still strongly directed toward the memorization of textbook content in order to succeed in the *gaokao* college entrance exam.

To determine whether students' perceptions of their teachers' methods differed across curricula, we asked several survey questions relating to teaching practices that the reforms may have changed: we asked whether teachers encouraged class participation, whether students explored answers on their own (as opposed to being told correct answers up front), and whether memorizing material was important to doing well in school. From these individual questions, we constructed an index of standardized outcomes that captures changes in students' perceptions of teaching practices (the components of the index were all coded such that a positive change in the index indicated change in the direction desired by reformers). In addition to this index, we also directly asked students, "how much do you think class/lecture or teaching activity is centered on *gaokao* preparation?"

In table 6, we present the estimated effects of the new curriculum on the teaching practices index (col. 5) and on students' perceptions of the focus of teaching on *gaokao* preparation (col. 6). One can see that the new curriculum did not have a statistically significant effect on the broad teaching methods index or on students' perceptions of teachers' focus on *gaokao* preparation. Thus, we do not believe that changed teaching practices concurrent with the textbook reform explain our findings.

### C. *Benchmarking the Effect Sizes*

*Persuasion rates.*—In order to quantify the magnitude of the effect of the new curriculum, for each individual question in our six broad categories of outcomes we compute persuasion rates (DellaVigna and Gentzkow

2010): the estimated percentage of individuals who did not initially hold the view that the new curriculum aimed to instill (the “desired belief”) but who did hold the belief if they were exposed to the new curriculum (and analogously for behavior). One could calculate this as the estimated treatment effect of the new curriculum divided by the share of students who do not hold the desired belief (engage in the desired behavior) in the entire sample.<sup>34</sup> A more correct definition of the persuasion rate would require us to divide the effect of the new curriculum by the share of students without the desired attitude among individuals who studied under the old curriculum; however, the compositional differences (by province and cohort) in the sample between old and new curriculum students would distort the results. As an alternative, we estimate the fraction of individuals who would hold the desired belief in the absence of the new curriculum. To do so, we predict students’ beliefs using our baseline regression model; but for students who studied under the new curriculum, we subtract the treatment effect of the new curriculum. We then average the predicted outcomes for those who studied under the new curriculum and the old curriculum and use this to calculate the fraction of the sample who would not hold the desired view in the absence of the new curriculum. We then use this share to compute the “conditional” persuasion rate.

In our presentation of regression results in table 3, we included estimates of the implied conditional persuasion rates. The persuasion rates we find are substantial: across all outcomes (including those for which the effects did not go in the government’s desired direction), the median persuasion rate was 8 percent; more than a quarter of the outcomes we examine show persuasion rates of greater than 20 percent. This is a large effect relative to estimates of persuasion rates found for various media in prior work; for example, DellaVigna and Kaplan (2007) find a persuasion rate from Fox News of approximately 3–8 percent, and DellaVigna et al. (2014) find a persuasion rate of 4–5 percent for Serbian radio in Croatia.<sup>35</sup> It is plausible that persuasion rates for educational con-

<sup>34</sup> For a binary outcome variable, this is straightforward; for questions that do not have a binary outcome, we calculate the persuasion rate based on a transformed dependent variable, which equals one if the outcome is greater than or equal to the median answer. In table 3, we always present the main regression results, i.e., the estimate of the treatment effect of the new curriculum, based on the original data (e.g., on a scale from 1 to 10), while the persuasion rates reported are calculated with the binary analogue. Note that in one case—“bribes are not necessary in interactions with police”—the median response equals the maximum possible response, so no persuasion rate is presented. Also note that we do not present persuasion rates when outcomes did not move in the direction desired by the Chinese government as students were not, on average, persuaded to hold the government’s desired attitudes.

<sup>35</sup> Enikolopov, Petrova, and Zhuravskaya (2011) find an 8 percent persuasion rate in an analysis of an independent Russian television station’s effect on voting for the opposition

tent are considerably larger than those for media, owing, for example, to the intensity of exposure and perhaps to the greater pliability of youths' views.<sup>36</sup>

*Effects on attitudes and behavior: Evidence from the Asian Barometer Survey.*—Our survey results on behavior—particularly political behavior—reflect the ambiguity of the mapping from political attitudes to political behavior.<sup>37</sup> As noted above, we believe that this analysis is affected by Peking University students' constrained opportunities to engage in many political activities of interest. We thus examine the association between political attitudes and reported political behavior using data from the Asian Barometer Survey, which covers a broader population, including older individuals who are less constrained in acting on their political attitudes.<sup>38</sup>

The Asian Barometer Survey asks respondents about their trust in various government officials, just as we asked the students in our sample. The survey also asks respondents about various forms of disruptive political expression, including whether they have attended a demonstration or protest march at least once during the past 3 years and whether they have refused to pay taxes or fees to the government during the same time period. Around 3 percent of respondents report having attended a demonstration, and 1.5 percent report refusing to pay taxes. We examine the association between reported levels of trust in local government officials (most relevant to the political behaviors we study) and reported political actions among mainland Chinese respondents with at least 12 years of schooling.

Our regression estimates (presented in app. G, table G.12) indicate that one standard deviation greater trust in the Asian Barometer Survey is associated with a 2 percentage point reduction in the likelihood of attending a protest or demonstration and a 1 percentage point reduction in the likelihood of refusing to pay taxes or fees. In figure 5, we saw that studying the new curriculum is associated with around a one-quarter standard deviation increase in trust in local government officials. Thus, under the assumption that the relationship between an individual's trust in government officials and his or her political action is similar for students in our survey to that for the broader set of educated individuals in the Asian Barometer sample, the new curriculum would make students

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parties it supported. They find a much larger, 65 percent, persuasion rate for the TV station's message of opposition to the progovernment party.

<sup>36</sup> See Gentzkow and Shapiro (2004) for a discussion of the influence of media and education on ideology.

<sup>37</sup> See Holbrook (2011) for a discussion of the strengths and weaknesses of inferring attitudes from behavior.

<sup>38</sup> The survey is hosted by the Institute of Political Science, Academia Sinica, and the Institute for the Advanced Studies of Humanities and Social Sciences, National Taiwan University. See <http://www.asianbarometer.org>.

around 15–20 percent less likely to engage in these disruptive political activities relative to their means.

#### *D. External Validity*

As with any study that relies on quasi-experimental variation, our estimated effects are “local” to our particular context. We believe this context is of special interest: not only do we study a naturally occurring policy change, but we also study a group of students whose views are most likely to shape Chinese political discourse—China’s educated elite. In addition, we study the impact of a change in educational content during students’ critical years (Krosnick and Alwin 1989; Giuliano and Spilimbergo 2014), with a lag of several years. This is of some interest: beliefs shaped by the curriculum would need to be persistent in order to be observed in our survey, and beliefs formed in students’ late teens and early 20s may be most likely to persist into adulthood.

Of course, one should use caution when generalizing from our results to the effect of the curriculum change on other Chinese students exposed to it. Peking University students uniformly excelled in their high school studies and so are more likely than other students to have learned the material in the high school curriculum. This might lead our estimated effects to be larger than for other samples of Chinese high school graduates (let alone for nongraduates). However, it is worth emphasizing, as discussed above, that our survey questions did not look like exam questions, but rather gauged students’ opinions. Moreover, there is good reason to think that our estimates may actually be lower bounds of the curriculum change’s effects on other Chinese students: students who choose to enter Peking University are seen as China’s most liberal and critical of government and so are likely to be less easily persuaded by the content of their high school textbooks than are other students.<sup>39</sup>

It is also worth noting that our survey can shed some light on heterogeneous effects of the new curriculum. In table G.13, we examine the effects of the new curriculum allowing there to be heterogeneity depending on students’, and their parents’, characteristics. While we find that these characteristics (e.g., parents’ membership in the CCP or students’ consumption of foreign media) are associated with differing political attitudes across students, they are not significant sources of heterogeneity in the effects of the new curriculum.<sup>40</sup>

<sup>39</sup> An *Atlantic* article posted on the Peking University website (quoted above) makes this point very explicitly (see fn. 26).

<sup>40</sup> One might also wonder whether, as a result of variation in response rates, our estimates differ from what one would find from a sample that matched the composition of Peking University. In app. G, table G.14, we examine the effects of the new curriculum, but

## VI. Conclusion

The Chinese government laid out a set of ambitious goals for curriculum reform in the early 2000s: the government wanted to shape students' views on the legitimacy of the Chinese government's institutions, political participation and democracy in China, and the role of the state in the economy. In all of these aims, we find evidence that the new curriculum introduced by the government successfully changed students' views of fundamental aspects of the society in which they lived. The magnitudes of the effects were both statistically significant and quite large: persuasion rates for a variety of important political and economic attitudes are estimated to be larger than those estimated in other settings, from other sources of information, such as television.

The government also indicated a desire to shape students' identities, uniting the Han majority and minorities within a traditional Chinese ethnic spirit. We do not find statistically compelling evidence that the government was successful in this aim, though in general, attitudes moved in the direction the government desired. The new curriculum also did not succeed in making students more environmentally conscious, perhaps because of a perceived policy trade-off between priorities of economic development and environmental protection and perhaps because environmental issues were not greatly emphasized in the new curriculum. Finally, the effects of the curriculum on students' behavior were mixed, which may reflect constraints on students' political behavior.

Our findings provide evidence on three broad theories of the roles played by school curricula in shaping political attitudes. First, and most broadly, they suggest that an authoritarian state can effectively indoctrinate students. Chinese students who studied under the new curriculum trusted a broad range of government officials more, viewed Chinese political institutions as more democratic, and were more skeptical of free markets. These are precisely the sorts of outcomes that scholars suspicious of elite control of educational institutions would fear (e.g., Freire 1970; Bowles and Gintis 1976; Lott 1999).

But there is also a brighter side to our findings: scholars who have argued that education can be crucial to the development of a functional democracy and the teaching of civic values (e.g., Dewey 1916; Lipset 1959; Glaeser, Ponzetto, and Shleifer 2007; Bandiera et al. 2016) also find support in our results, which suggest that educational content can shape students' views of political institutions. Finally, our results provide weaker evidence of education forming students' national and ethnic identities

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reweighting each observation by the inverse of the survey response rate in the respondent's province $\times$ cohort cell. Using the reweighted observations produces results very similar to our baseline estimates.

(see Weber 1976; Gradstein and Justman 2002, 2005; Alesina and Reich 2013; Clots-Figuera and Masella 2013): the new curriculum only marginally (and not significantly) affected students' expressed identities.

While we find causal effects of school curricula on students' ideology, the social welfare consequences of these effects depend on the political economy of curriculum choice: to the extent that educational content is selected to shape ideology, rather than to produce human capital, there can be a significant cost of using the education system to indoctrinate, certainly to students being educated, and perhaps to elites as well, if they benefit from more productive workers. On the other hand, the beliefs shaped by the schooling system might be extremely beneficial, as they may reduce social friction, improve coordination in a variety of settings, and establish socially valuable norms. Of course, the norms instilled in school may be disproportionately beneficial to the seated elite, who have the ability to shape what is taught.

These results thus suggest an analysis of the political economy nexus when thinking about the government's incentives to provide education. Cantoni and Yuchtman (2013) examine elites' choices of whether to introduce particular educational content in important historical settings, but political choices are made regarding educational content around the world shaping political outcomes as well as human capital accumulation. We believe that the choices that elites make regarding educational content deserve further study.

## Appendix

*Category: Governance*

Panel A: Trust in government officials

- A.1–6. Describe your level of trust in the following institutions: (1 = complete distrust; 5 = complete trust)
- A.1. Central government
  - A.2. Provincial government
  - A.3. Local government
  - A.4. Courts
  - A.5. Armed forces
  - A.6. Police

Panel B: Bribery and civic-mindedness

- B.1. Village heads put their own interest before those of people. (1 = fully agree; 5 = fully disagree)
- B.2. Village heads care primarily about the powerful and rich people, and neglect the interests of ordinary people. (1 = fully agree; 5 = fully disagree)

- B.3–7. In your opinion, how often is it necessary for people like you to have to make unofficial payments/gifts in these situations: (1 = always; 5 = never)
- B.3. Interacting with the traffic police?
  - B.4. Requesting official documents (such as passport or birth certificate)?
  - B.5. Interacting with the civil courts?
  - B.6. Interacting with the providers of primary or secondary education?
  - B.7. Interacting with doctors?
  - B.8. Do you think that paying a bribe is an acceptable way to accomplish something? (1 = no)
  - B.9. Do you think that paying a bribe is an effective way to accomplish something? (1 = no)
  - B.10. From the perspective of local government officials, do you think they would accept a bribe when it is offered to them? (1 = no)

*Category: Political Institutions*

Panel C: Perception of Chinese democracy

- C.1. Where would you place our country under the present government? (1 = completely undemocratic; 10 = completely democratic)
- C.2. In reality, ordinary people are able to influence who becomes the village head. (1 = totally disagree; 5 = fully agree)

Panel D: Wisdom of the masses

- D.1. Ordinary people can judge who would make a better village head. (1 = fully agree; 5 = fully disagree)
- D.2. Theoretically speaking, ordinary people should be able to influence the decision of who becomes the village head. (1 = fully agree; 5 = fully disagree)
- D.3. Ordinary people know clearly which leader is doing a better job. (1 = fully agree; 5 = fully disagree)
- D.4. Democracy (choose one): (a) Democracy is preferable to any other form of political system; (b) Under some circumstances, an authoritarian government may be preferable to a democratic one; (c) For people like me, it does not matter whether a government is democratic or authoritarian. (1 = chooses (b) or (c); 0 = otherwise)
- D.5. Here is a similar scale of 1 to 10 measuring the extent to which people think democracy is suitable for our country. If “10” means that democracy is completely unsuitable for China today and “1” means that it is completely suitable, where would you place our country today?

Panel E: Characteristics of democracy

- E.1. Which of the following do you think are characteristics of a democracy? (1 = “People’s participation in the political process” listed first; 0 = otherwise)



*Category: Economic Institutions*

Panel F: Skeptical of markets

- F.1. From the following statements on a market economy, choose one that you agree with the most: (a) A market economy is preferable to any other form of economic system; (b) For people like me, it does not matter whether the economic system is organized as a market economy or as a planned economy; (c) Under some circumstances, a planned economy may be preferable to a market economy. (1 = chooses (b) or (c); 0 = otherwise)

*Category: Identity*

Panel G: Ethnic identity

- G.1. Generally speaking, would you say that people in minority groups can be trusted, or that you cannot be too careful in dealing with them? (1 = cannot be too careful; 5 = completely trustworthy)
- G.2. China is a country made up of multiple ethnic groups. Which one of the following statements regarding ethnic minority groups do you agree with more? (a) Compared to Han Chinese, ethnic minority groups are relatively independent groups. (coded as 0) (b) Ethnic minority groups are the same as Han Chinese, and they are all Chinese people. (coded as 1)
- G.3. China is a country made up of multiple ethnic groups. Which one of the following statements regarding ethnic minority groups do you agree with more? (a) Ethnic minority groups share the same historic heritage and cultural traditions as the Han Chinese. (coded as 1) (b) Ethnic minority groups have different historic heritage and cultural traditions from the Han Chinese. (coded as 0)
- G.4. Can you imagine yourself marrying a member of a different ethnic group in the future? (1 = yes)

Panel H: National identity

- H.1. Where would you place your identity on a spectrum, with being Chinese on one end (5) and being a world citizen on the other end (1)?

*Category: Environment*

Panel I: Attitudes about environment

- I.1. Would you be willing to give part of your income or pay more taxes, if you were sure that the extra money was used to protect the environment? (1 = yes)
- I.2. People often talk about what the goals of this country should be for the next ten years. Listed below are some common goals for a nation. Please

pick the one that you consider as primary for a nation. (a) A high level of economic growth. (b) Maintaining economic stability. (c) Maintaining order in the nation. (d) Giving people more say in important government decisions. (e) Protecting the environment. (1 = chooses (e); 0 = otherwise)

- I.3. Here are two statements people sometimes make when discussing the environment and economic growth. Which of them comes closer to your own point of view? (a) Protecting the environment should be given priority, even if it causes slower economic growth and some loss of jobs. (b) Economic growth and creating jobs should be the top priority, even if the environment suffers to some extent. (1 = chooses (a); 0 = otherwise)

*Category: Behavior*

Panel J: Political behavior

- J.1. I have voted for local (county or district) People's Congress representatives before. (1 = yes)  
 J.2. I plan to vote for local (county or district) People's Congress representatives. (1 = yes)  
 J.3. Are you a CCP member, or reserved member of the CCP? (1 = yes)  
 J.4. Have you ever participated in political groups other than CCP and Communist Party Youth Organization? (1 = yes)

Panel K: Avoiding risky investment

- K.1–2. Have you had the following investment experiences before? (Choose all that apply)  
 K.1. Stocks. (1 = no)  
 K.2. Bonds. (1 = no)

Panel L: Cooperation with minority

- L.1. Have you worked with minority group students at school before (in study groups or class projects)? (1 = yes)

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