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## Dearth and Distortion in Dictators' Data

by **Jeremy Wallace**  
Cornell University

### I. Introduction

Dictators have limited information about the world, their populations, the threats they may face, and even their own regimes. While dictators spend resources to make their populations legible and build institutions to collect this information, those expenditures face political and budgetary constraints.<sup>1</sup> Further, the bureau-

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<sup>1</sup>See Jerven (2013) on the difficulty involved in building strong statistical bureaus in developing countries; Greitens (2016) and Svobik (2012) for more on the political constraints involved in building strong information institutions in the coercive sector; and Blydes (2018), Scott (1998), and Wallace (2014) on legibility. Restrictions on a free media are the prime example of choosing control over information.

crats inside these institutions can face incentives to deliver manipulated data to the dictator. This brief essay focuses on the political sources and consequences of missing and distorted data in dictatorships, illustrated with thumbnail sketches from the People's Republic of China. First, examples illustrate how ideological and historical constraints harm data quality, leading dictators to make major policy mistakes. Next, I highlight an instance of a regime choosing not to know, where better data collection followed a threat emerging. Then, I turn to how the shape of formal and informal institutions affects the quality of the signals that dictators receive.

## II. Policy Mistakes

A dearth of expertise and data lay behind China's infamous 1979 one-child policy. Earlier efforts had already reduced China's fertility rates from six to three children per woman from 1970 to 1979 (Banister, 1987; Whyte, Feng and Cai, 2015). Despite such 'success' in curtailing population growth, Chinese leaders adopted the stringent one-child-per-couple limit, based on population projections from an unexpected source (Greenhalgh, 2005). Chinese military scientists achieved hero status following breakthroughs such as placing a satellite in orbit in 1970, and Song Jian, a rocket scientist, applied techniques from missile control to demography and became a major policy force (Greenhalgh, 2005).<sup>2</sup> Along with a few compatriots, he took over technocratic debates about population policy by attacking social science in China as lacking quantitative skills, which was largely accurate as the ranks of the Chinese intelligentsia — excepting only the military sciences — had been ravaged by the Cultural Revolution between 1966 and 1976 (Greenhalgh, 2003, 169–170). Song's first trip abroad exposed him to the Club of Rome's apocalyptic view on overpopulation, but he failed to note any of their critics. Full of misplaced confidence, he and his collaborators presented a "virtual population crisis" to Deng Xiaoping and other new reformist leaders that won the day (Greenhalgh, 2003, 172). Studies document the tremendous social costs of the policy and show that economic development — rather than the one-child policy — actually accounted for China's subsequent reduction in fertility (Whyte, Feng and Cai, 2015; Zhang, 2017). Here, limited connections to the non-Communist world

and the loss of expertise from Cultural Revolution attacks on social science constrained and biased the information that the regime's leaders used to formulate policy.

Concurrent with the one-child policy, distorted data led the Chinese regime to blunder in economic policy, with the disintegration of its vaunted 'Ten Year Plan'. The plan called for jump-starting development by constructing twenty-two industrial mega-projects with imported technologies. The plan's funding depended on continued rapid expansion of oil production: "China's petroleum sector had been one of the few success stories of the Cultural Revolution era: Output had grown by 20% annually between 1969 and 1977, and planners were projecting that rapid increases would continue" (Naughton, 1995, 69). However, that level of growth required finding and developing ten fields on the scale of Daqing, China's largest oil field. The head of the Planning Commission, Yu Qiuli, was intimately familiar with the oil sector and with the Daqing field in particular, as he led the effort that transformed Daqing from semi-frozen marshland into a massive oil production center. Many Planning Commission staffers had backgrounds in oil, yet after a decade of triumph after triumph their expertise had congealed into boosterism. The plan's funding relied on the oil from ten new Daqing-sized fields, yet the fields and their locations were unknowns. Indeed, despite desperate searching and exploratory drilling, they turned out to not exist, as promising sites without verified reserves failed to pan out (Naughton, 1995, 71). Billions of dollars of international deals were suspended, and the plan was abandoned in favor of readjustment, rectification, and reform (Naughton, 1995, 76).

## III. Choosing Not to Know

Dictators also consciously choose not to know information. Restraining media and civil society represents one such well-known tradeoff between control and data (Policzer, 2009). Chinese air pollution statistics are another case in point. In 2008, the U.S. Embassy in Beijing began collecting samples of particulate matter under 2.5 micrometers in diameter (PM 2.5), publishing hourly results on Twitter despite complaints from Chinese au-

<sup>2</sup>From a mathematical point of view, missile control techniques lent themselves readily to population control problems, because the trajectories of missiles and populations charted over time followed similar lines, and because the optimization problems for controlling the two objects took functionally similar forms.

<sup>3</sup>See <http://www.stateair.net/web/historical/1/1.html>.

thorities.<sup>3</sup> Similar objections had been raised to studies on pollution harming the health of the Chinese people, such as a 2007 World Bank estimate of 750,000 deaths a year (Barboza, 2007; World Bank, 2007).<sup>4</sup> In October 2010, its account tweeted that Beijing's air was "crazy bad" as its reading exceeded 500, twenty times the World Health Organization's guideline for healthy environments.<sup>5</sup> In the fall of 2011, the U.S. Embassy's monitoring equipment again registered scores so polluted that they were "beyond index", while the Beijing city government stated that the air was only "slightly polluted" (Demick, 2011). The official data was not fabricated but instead came from instruments measuring only larger particles (PM 10). In early November, noted real estate mogul Pan Shiyi sent his sixteen million Weibo followers multiple messages calling for the Chinese government to monitor PM 2.5 in addition to PM 10. Days later, Premier Wen Jiabao assented, saying that the government needed to improve its environmental monitoring and bring its results closer to people's perceptions (CCICED, 2012; Oliver, 2014). One year later, PM 2.5 monitoring stations broadcast hourly reports from dozens of cities (Oliver, 2014). A year after that, the Chinese government cracked down on its most influential social media verified users — the Big Vs, such as Pan Shiyi — as a way to control information flows deemed dangerous to the regime (China Digital Times, 2013; Lubman, 2013).

#### IV. Distortion and Data Falsification

Anecdotes of poor policy decisions made by dictators facing a dearth of high quality information are unlimited. Yet building institutions to collect and process information can be difficult logistically and politically. The lack of technically trained staff along with commensurate salaries can hamper the growth of statistical agencies (Jerven, 2013). Principal-agent problems can also arise when statistics are used to assess both the situation and the local leaders who oversee it.

For instance, the Chinese government used the growth of gross domestic product as a performance standard in evaluating its cadres at lower levels (Li and Zhou, 2005). Yet those cadres also held power over the bureaucrats producing the statistics by which they were assessed, incentivizing bias. Concerns about the quality of Chinese economic data are pervasive, and even

the regime's top leaders have expressed skepticism about such measures. In an interview released by Wikileaks, current Premier Li Keqiang was quoted as saying "GDP figures are 'man-made' and therefore unreliable" (Wikileaks, 2007).

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Systematically identifying such distortions in official data is difficult, as most relevant and available metrics that could be used to assess the validity of official data are produced by the same bureaucracies. However, some types of data are more sensitive than others, as are some periods of time (Wallace, 2016). GDP data is more sensitive and hence more likely to be manipulated than its correlates, such as electricity production and consumption. GDP manipulation is also likely to vary over the political cycle, in ways similar to those predicted by the political business cycle literature, allowing for the measurement of the induced distortion (Drazen, 2000; Guo, 2009).

#### V. Networks as Informal Information Channels

If dictators are aware of the flaws in their formal information systems and are unwilling to allow for freedom of the press or other kinds of information flows for fear of the possibilities that might be unleashed if they did, then are they doomed to rely on such distorted data? Intriguingly, there is evidence that another kind of information system inside of dictatorships can provide some assistance for dictators looking for higher quality information. Informal networks of regime elites are often derided as cliques or factions and seen as sources of potential danger for dictators and their allies as well as often masking corruption. Indeed, such networks can

<sup>4</sup>The World Bank's mortality estimate includes harms from water pollution as well.

<sup>5</sup>Not expecting such a high reading, programmers jokingly had coded that label for such 'beyond index' scores (Demick, 2011).

and do form the basis of splits amongst elites in moments of crisis that can bring down regimes, as well as be springboards for coups. While from the dictator's perspective such downsides do exist, informal political connections can also improve the quality of data emerging from formal channels. If the potential for promotion is the source of pressure that on occasion produces information manipulation inside the formal system, then other factors reducing the significance of that metric might reduce the incentive to falsify the statistics. In the Chinese case, local leaders might have less incentive to manipulate GDP growth data if they had reason to believe that they were likely to be promoted (or not promoted) anyway. New research shows that political connections with higher level officials can act as an informal information channel, reducing distortion from the formal channel by adjusting incentives and perceptions (Jiang and Wallace, 2017).

## VI. Conclusion

Dictators distort data for their own reasons but also often make decisions based on biased or missing information. Attempts to simplify and systematize complex realities to make threats legible can contort facts into falsehoods. Rare is the underling brave enough to state that the emperor has no clothes. These information problems, especially when paired with the limited checks on established dictators that have personalized power, explain why dictatorships make more disastrous policy mistakes than democracies (Scott, 1998; Svobik, 2012).

The dearth and distortion of dictators' data are not the only information problems facing nondemocracies. Dictatorships tend to have poor information environments, as they are more likely than democracies to constrain press freedom and civil society actors who might provide 'external monitoring' of the regime.<sup>6</sup> Propagation of propaganda is common, as dictators and their regimes often intentionally release distorted data for political purposes. If regimes are stable but occasionally threatened in moments of tumult, then manipulated data may "obfuscate the situation's desperation from the people and reduce the risk of collective action against the regime" (Wallace, 2016). But dictators also unknowingly release and use distorted data, often with disastrous consequences.

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<sup>6</sup>Policzer (2009, 7) contrasts this external monitoring to 'internal monitoring' by intra-regime institutions.

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## Dataset

### Categorizing Media Freedom from 1948-2016: Version 3 of the Global Media Freedom Dataset

by [Jenifer Whitten-Woodring](#)  
University of Massachusetts Lowell

A free press is essential for peace, justice, and human rights for all. It is crucial to building transparent and democratic societies and keeping those in power accountable. It is vital for sustainable development (United Nations Secretary-General António Guterres, World Press Freedom Day 2018).

Media freedom has long been theorized as critical to the promotion of democracy, the prevention of corruption, and the protection of human rights by policy makers, international organizations, and human rights advocates. The presumption that it provides these benefits led to efforts to export press freedom to the developing world in the years following World War II (Blanchard, 1986). Yet until recently, there have been few studies that test the presumed effects of media freedom, largely

due to a lack of consistent data across countries and over time. This was the motivation behind the construction of the Global Media Freedom Dataset (GMFD). GMFD version 3 includes data for all available countries from 1948 to 2016.

The purpose of the GMFD is to identify whether media in a given country-year are able to function as a Fourth Estate in order to facilitate studies focusing on the causes or effects of media freedom (and its absence). The GMFD was gathered using a consistent methodology to categorize the media environment for each country-year as *free media* (1), *imperfectly free media* (2), *not free media* (3), or *no media to code* (0).<sup>1</sup>

These categories are based on the identification of conditions that make it possible for journalists to hold governments accountable. In a media environment that is coded *free*, journalists have the capacity to engage in critical reporting about government policies and the behavior of political leaders even if such critical reporting could anger citizens and lead them to push for regime change, such as the coverage of the Watergate scandal in the United States. Examples of country-years coded *free* include Costa Rica (1948-2016), New Zealand (1948-2016), and Ghana (2001-2014). If journalists are able to criticize the government, but will pay some costs for doing so, or are constrained from doing so in at least one medium or region of the country, then media are coded as *imperfectly free*. Cases in this category include India (1948-1974; 1978-2016), where independently owned newspapers can and do provide critical coverage of the government, but radio news coverage is permitted only on the state-owned AM radio stations. The Indian government has also shut down newspapers and mobile Internet service in conflict prone regions, especially Jammu and Kashmir. For these reasons, media in India for most years are coded as *imperfectly free*. If media are controlled by the government directly or indirectly to the extent that journalists and news organizations are prohibited from serving as a Fourth Estate (or face dire consequences if they do so), then the media environment is coded *not free*. Cases in this category include Egypt (1948-2006; 2010; 2012-2016), Rwanda (1962-2016), Myanmar (1962-2016), and Portugal (1948-1994). The only cases with *no media to code* are the Republic of Congo (1960-1968) and Nepal

<sup>1</sup>In the first version of this dataset gathered by Van Belle (1997), *not free* was comprised of two categories: indirectly controlled by the government and directly controlled by the government. We find that with the proliferation of the Internet and other digital media, there are almost no media systems that fall under complete government control, the exception being North Korea.