Aadhaar and the Social Credit System:
Personal Data Governance in India and China

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The Social Credit System in China and the Aadhaar system in India constitute 2 cases of the most rapid capture of personal data about national populations in history. So far, there is limited research about how the 2 systems operate in practice, on the ground. Yet for the longer-term shaping of the 2 systems—including notions of privacy, the role of the state in promoting digital technologies, and the relation among states, markets, and civil societies—there is extensive research to draw on. This article puts the comparison between the 2 systems into a larger framework of the experiences of other countries. It also locates the comparison in current debates about the governance of digital media companies and the regulatory regimes that pertain to them, including other personal identification systems. The article concludes with reflections on the prospects for China's and India's systems and beyond.

Keywords: Aadhaar, Social Credit System, India, China, data, regulation

The Social Credit System (SCS) in China and the Aadhaar system in India constitute two cases of the most rapid capture of personal data about populations in history. Both systems will shape the future of social development of the two countries and have important implications further afield. This article argues that even though the implementations of the two systems are still at early stages, they already yield many important lessons. The article analyzes the two systems and what is known about their uses to date. The challenge is that, so far, there is limited research about how the two systems operate in practice, on the ground. The longer-term trajectories, however, concerning how both governments treat the privacy of their citizens and how they control their media systems, are well known. Both governments also have developmental strategies for digital technology, but it is the relations between states and civil societies in the two countries, and the autonomy of media or the lack thereof, that constitute the terrain on which the two systems will be primarily shaped and where there is extensive research to draw on.

The article proceeds as follows: First, it gives a brief account of both systems. Then it compares the two systems with those of other countries and puts these comparisons into a larger framework of current debates about privacy and about the governance of digital media companies, particularly American and Chinese ones. The reason for bringing the United States into the two-country comparison is straightforward: American technology companies and laws shape data governance in large parts of the world, transnationally,

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as does the European Union's (EU) General Data Protection Regulation, which will also be discussed briefly. Thus, some systems are shaped beyond borders (primarily the United States, China, and the EU) within the larger landscape of evolving privacy legislation and the roles of digital infrastructures. Since India's and China's systems will develop theirs within the confines of their nation-states, it also behooves us to bring in another comparison with a system that has developed relatively autonomously, largely within the bounds of the nation-state, and is well-functioning and so can serve as a model as well as a comparison—namely Sweden. In the conclusion, we will need to come back to the extent to which the article needs to go beyond the two cases examined, which will allow the article to conclude with reflections on the prospects for China's and India's systems, and whether and how they can be guided by or provide models further afield.

The overall argument can be previewed briefly: In India and China, both the government's personal identification schemes and the schemes to accelerate digital commerce are slowly but inexorably moving forward. Yet politics and commerce are also separable and move at uneven speeds. In the future, these political and economic uses of personal digital data may become linked, but it is also worth considering how they may remain separate. The example of Sweden's well-established system can be used to make this point briefly (it will be discussed further later). In Sweden, as a citizen, it is not possible to obtain state services without having a person number, a means of ID that all citizens have. This ID can also be used in commercial transactions, but it is possible to engage in such transactions, buying things and using private-sector services, without it. The types of data that have recently been much discussed in relation to privacy—digital media data as gathered by Facebook or Google—are also separate from the Swedish person number and cannot be linked to it. Personalization of advertising and the likes of services based on digital media data should thus not be seen as part and parcel of the state's ID capacities and vice versa, in Sweden and beyond. In short, there is a difference between the governance of personal data in relation to citizen identification and the state's services as against data mostly from private-sector digital media companies and used for tracking consumer behavior, which also requires regulation and governance but along separate lines. There are some connections in terms of the infrastructure used, but we will need to bear this difference in mind and come back to it in the conclusion.

The point here is that to see Aadhaar or the SCS as having a single or all-encompassing or inexorable logic, or one related to broader discussions of digital media, conflates a number of separate developments. To be sure, as part of the quantification of society (Mau, 2019), there is an ongoing rationalization of various aspects of everyday life whereby digital data are used to measure social behavior and whereby messages can increasingly be tailored and targeted to publics and consumers. On the government side, there is a long-standing history of censuses and personal identification (for China, see Ghosh, 2020; for India, Sriraman, 2018). However, this penetration of the lifeworld by digital systems includes choices about how these systems are interconnected (or not) and how these systems entail different benefits and constraints. Coming back to the Swedish example, there have been a number of highly publicized scandals and debates over the extent to which the person number can and cannot be used (Axelsson & Schroeder, 2009). These scandals and public debates, with strong involvement of civil society, were resolved with strict regulation.

Unlike India and China, however, Sweden is a stable and well-functioning democracy and has a well-regulated economy with a long-established personal identification system and media autonomy. These

conditions do not apply to China's overweening state and the many online economic scams that potentially intersect with the SCS. In India, the Modi government especially has infringed on individual rights and interfered with the legal system to shape its preferences for the workings of the Aadhaar system (Jaffrelot, 2021, pp. 282–283). Having said all this, and while it is worth stressing that the two systems will be shaped by the state and commercial regulation rather than by the media system of news and advertising and the like, it can also be noted immediately that what is distinctive of Aadhaar and the SCS is that these systems will be shaped thoroughly by how media technologies are primarily used—which in the case of these two countries means mobilecentric.

Finally, before we begin, it is worth pointing to an imbalance in existing academic studies of the two systems as between the two countries: For India, there have mainly been anthropological studies to date of Aadhaar (Rao & Nair, 2019), whereas for China, most studies take a top-down or policy- and governance-oriented approach. This imbalance reflects the strength of past research traditions, with a strong tradition of anthropology in India and many studies of the authoritarian state in China. It also reflects that India's state does not have the same infrastructural capacity, and so the implementation of the system has been quite uneven. In China, in contrast, there is a tradition of local policy experimentation, but the SCS has been driven top-down by the state.

If there were more anthropological studies in China, they also would show greater complexities in implementation on the ground. On the other hand, if there were more analytical and top-down studies for India (the main exceptions are the overviews by Aiyar, 2017, and Belorgey & Jaffrelot, 2021), they would show government, business, and information technology industry elites working toward an interconnected infrastructure but with slow and uneven success, also on the ground. In India, this complexity also arises from the fact that the system is being developed differently by individual federal states. In China, too, provincial governments are competing with one another for being seen as exemplary in implementing their local systems. Thus the two systems reflect the politics and uneven developmental realities of large technological systems in the making (Hughes, 1987), which are fluid in their early phases even as they become hardened structures—infrastructures—over time (Schroeder, 2007, pp. 44–54). Against this background, we can turn to each system in turn before embarking on comparisons and more general considerations.

Aadhaar

The Aadhaar system has been under development for more than a decade. The system was originally aimed at a wide set of private- and public-sector uses. Although the vast majority of the population now has an Aadhaar number (12 digits, plus biometric data), the systems' routine uses to date are limited. That is partly because India has a lively civil society and powerful courts, which have pushed back against a system that has been regarded as posing a threat to people's privacy (Aiyar, 2017). The development of Aadhaar took a major turn in 2018 when the courts decided that Aadhaar could not be made mandatory except in relation to certain uses for receipt of government welfare services (such as the provision of liquefied petroleum gas, which is a benefit that many, particularly in rural India, make use of). The government, however, has been keen to make more extended use of the Aadhaar number.

Insofar as the system is primarily used for government services that will still potentially have vast ramifications since the Indian government provides much by way of poverty relief and preferment for different groups on the basis of caste and other status markers. As Bayly (2018) points out, India is "the world's largest democracy and its most elaborate system of positive discrimination" (p. 77). Such targeted relief has in the past led to extensive controversy, and Aadhaar may improve some forms of targeting, abandon others, and also lead to new forms of targeting of services. As Khera (2019) notes, the system is gradually moving from being voluntary to becoming compulsory (p. 10). But again, from a legal perspective, it is compulsory, according to the court ruling, only for those who are provided with certain welfare services. Otherwise, it will become "compulsory" in the sense that having a credit card in advanced economies is to all intents and purposes compulsory: It is impossible to live without it.

Function Creep?

Aiyar (2017) notes that the Aadhaar system as it stands is quite limited:

> While the Aadhaar number is known to the bank, to the Income Tax Department, the telecom company et al., the Aadhaar platform itself does not have information about bank accounts or income tax returns. All authentications are yes/no answers and eKYC [know your customer] allows viewing of demographic data on queries but requires approval for use, and every query is a single-use query. (p. 215)

A brief comparison can be made with the United States here (more comparisons will follow later). As Bej (2019) reports in her comparison of Aadhaar with the Social Security number in the United States, while the Aadhaar number is growing in scope, in the United States, the collection of personal data has been constrained by law and the Social Security number is restricted to use in employment, tax, and very few other uses. It is also a number, like Aadhaar, but has no biometric component, unlike Aadhaar. Yet in India, despite the ruling that limits Aadhaar uses, the government is close to business and may seek to allow these uses to become more extensive by stealth or "function creep," which has been resisted, especially by lawmakers, in the United States.

In the private sector, the Aadhaar number is becoming more widely used, but mainly, as elsewhere, to facilitate credit and payments. More broadly, there are high hopes for Aadhaar in the private sector. India has a hopeful start-up scene as described, for example, by Poonam (2018) that could be enabled by digital identifiers, but the government's data infrastructure that uses personal digital data has been constrained by the Indian court ruling. Similarly, the dominance of U.S. companies in e-commerce is limited. For example, the largest e-commerce company, Flipkart, 77% owned by Walmart (https://en.wikipedia.org/wiki/Flipkart), has a 39.5% share of the e-commerce market, but it is in competition with Amazon, but foreign companies have also been constrained by government regulation (a Wikipedia entry is given as a source here since these proportion shares are changing). Still, Modi has high ambitions for a digital infrastructure to promote economic growth—"Digital India"—as well as promoting social development.

Perhaps the most comprehensive survey of how Aadhaar has been received is provided by the annual "State of Aadhaar" report (Totapally, Sonderegger, Rao, Gosselt, & Gupta, 2019). The report is

produced by a nongovernmental organization (NGO), though it should be noted that the reliability of the report has been questioned because of the overlap between the NGO and the systems' government developers. Its 2019 report (there is no 2020 report, perhaps because of the current pandemic) presents "findings from a pulse survey with 147,868 households across 28 Indian states and union territories, and an in-depth survey with 19,209 households in 16 states, and one union territory" (Totapally et al., 2019, p. 3). The findings are decidedly mixed. Although 95% of Indians have an Aadhaar identifier, some parts of the population are underserved, including children, people in the least developed states such as Assam, and the homeless. Yet for some underserved groups, Aadhaar has also provided first-time access to an identifier and the benefits it brings.

The vast bulk of uses of Aadhaar, apart from as a bank ID and obtaining SIM cards, are for receiving state benefits such as pensions. Still, 90% believe, falsely, that having an Aadhaar ID is necessary by law for having a bank account. There are problems, again concentrated among certain parts of the population, in updating their Aadhaar ID and cases (ranging from 0.5% to 1.5% for different services) whereby citizens have been denied benefits on the basis of some kind of Aadhaar failure. But the vast majority, 90%, believe that their data are safe in the system and that it has been beneficial. They are satisfied with the system, even those for whom the system has caused difficulties. In short, the system is being gradually extended and integrated into some key everyday activities such as accessing state services. It is accepted as convenient even if it is far from perfect—and shortcomings skew toward the most disadvantaged or those who need the system most.

A Mixed Picture "on the Ground"

Surveys tell one story, but there have also been a number of ethnographic studies "on the ground" that tell a somewhat different one. Chaudhuri (2019), for example, shows that, particularly for people who are disadvantaged, the Aadhaar system often works poorly. Her ethnographic observations in two states (Andhra Pradesh and Rajasthan) document that the infrastructure often does not work as planned. For example, there are often issues with a lack of connectivity or when the system cannot cope with irregularities. Hence those who work at the kiosks or in government offices develop workarounds, such as replacing the formal operation of the system with informal workarounds, which, of course, defeats their purpose. In this way, a rickety infrastructure can be made to work, howsoever imperfectly, and these human efforts, Chaudhuri (2019) argues, will continue to be necessary to keep the technological system afloat.

Along similar lines, Krishna (2021) has done research among informal cabdrivers and domestic workers in South India and how the uses of Aadhaar identification can lead to inequalities, for example, when the consent forms need to be signed to use the system (which is in practice obligatory). Some of the cabdrivers cannot read English, so they consent to something they do not understand. Whether the incorporation of workers into the formal economy in this way creates greater inequality or the opposite depends, of course, on the system of taxation. This effect of incorporation via the Aadhaar system echoes the conclusion of Doron and Jeffrey's (2013) account of the effect of the mobile phone: "The cell phone drew India's people into relations with the record-keeping more comprehensively than any previous mechanism or technology" without, they add, lessening inequalities but making their citizens more equal—"democratic"—vis-à-vis the state (p. 224). Unfortunately, more comprehensive accounts of the day-to-day

workings of the system are lacking. Still, taken together, as Cohen (2019) says, it is important to go beyond a simple "operational verdict (success/failure) than a massive, uneven, and continually shifting distribution of both inclusionary and exclusionary effects" (p. 333). The same, as we shall see, applies to the SCS.

During the 2019 election campaign, Modi presented himself as someone who could bring more inclusive social development, but the reality has fallen short. It is not clear that the welfare benefits under his governments since 2014 have been any more successful than those of previous (Congress-led) governments. The state in India has far weaker powers than in China, though this varies among the different Indian states, and it is still unclear how much the national government can convince citizens of its benefits.

The Social Credit System

The Chinese SCS, as several analyses have pointed out, is not one system but many. It is potentially becoming a more coherent system in the future (Drinhausen & Brussee, 2021), but speculating about possible scenarios that bear little resemblance to current realities may not be useful. Instead, it is perhaps more promising to examine its potential trajectories in terms of the longer-term contexts in China. One of the main purposes to which the SCS was put when it was first being developed was to ensure access to financial credit for individuals and companies, and this is still the primary purpose. It has subsequently developed into a system with a far broader agenda, but this broader agenda in ensuring the continued legitimacy of the party-state in relation to Chinese citizens' needs to be seen into the context of the workings of China's media system. In media reports outside of China, however, it is the Orwellian aspect of the system—to reward positive social behavior and punish bad social behavior—that has been much commented on (Strittmatter, 2020). Examples of these uses in relation to individual citizens in practice, however, as we shall see, are so far restricted to a few isolated examples that are far outweighed by other current uses not related to individual citizens but rather to businesses and organizations (Drinhausen & Brussee, 2021). This is not to say, again, that the system might not become more centralized and encompassing in the future.

Orwellian or Huxleyan?

There is a larger point here, however, which is that the majority of Chinese citizens regard the system positively, including how the system ensures social stability and promotes moral behavior. That is in keeping with the legitimacy of the political system, "performance legitimacy" (Zhao, 2009) within a meritocratic political culture (Bell & Wang, 2020). The vantage point from which the Chinese media system can be regarded as Orwellian is external, from the perspective of democratic societies with civil and political rights and in which media are autonomous and provide for unfettered expression. A more accurate internal perspective, however, is one whereby Chinese citizens willingly embrace the SCS and how it shapes their social lives. This makes it closer to a Huxleyan "Brave New World" of consumerism in which people become accustomed to convenience but also give up their data in exchange for becoming habituated to online goods and services (Schroeder, 2014). That is not unique to China. Turow (2017) has documented a similar phenomenon in the United States.

Reports in Western media have pointed to the vast potential of the system for top-down political control using behavior scoring. Such uses are regarded by China scholars as exaggerated and reflect

Western worries about digital technologies enabling a surveillance state more than what is happening in China. The actual workings of the system, however, are more bottom-up, as Pan (2020) has documented. However, Pan's (2020) use of "digital dictatorship" in this context is puzzling since the bottom-up mobilization of the population could be seen as in keeping with both the Confucian and Maoist traditions of governance, whereby the population is mobilized for the common or social good rather than for the individual flourishing as in democratic pluralist systems (Xi Jinping's recent pronouncements, however aspirational, are about "common prosperity"). The Chinese authoritarian government thus uses the SCS to control the population at a grassroots level.

There are other mechanisms, apart from the SCS, and especially the media, to ensure ideological cohesion via persuasion and propaganda. Unlike North Korea, which is a dictatorship since it serves only to perpetuate the regime and is not responsive, China is an authoritarian party-state. A dictatorship in China may become possible if the government needs to use more repression and it is less responsive to citizens and perpetuates a single ruler. In other words, for China, as for the Aadhaar system, it is important to put an emerging technological system into the context of longer-term histories and distinctive trajectories of development. Kostka (2019) has shown that the Social Credit System is widely and overwhelmingly regarded in positive terms by the Chinese population. Indeed, it is more highly regarded by those who have been able to benefit from some of its perquisites (reduced train fares, lower mortgage payments, and the like) and who are more highly educated and more familiar with the system than among the population with less experience with the system and lower education levels. This may be because current uses of the system are overwhelmingly to do with ensuring consumer protection and credit rather than control of citizens' political behavior.

Drinhausen and Brussee (2021) provide a recent report on the SCS based on scrutinizing various documents and media reports. They find that the system consists of many pilot schemes with different "red lists" (rewards) and "black lists" that vary even within cities. Overwhelmingly, the schemes are aimed at companies (73.3%) and government (13.3%) with only 10.3% aimed at individuals and 3.3% at social organizations. Drinhausen and Brussee (2021) say "a key part of SoCS [Social Credit System] building in recent years was making sure that all individuals, private entities, or organizations nationwide could be identified by a standardized identification number," which has largely been achieved (p. 9). They point out that the government has not used punishments for minor offenses for fear of pushback and also that legal professionals are calling for laws to prevent such uses. They further say that

> the Social Credit System is often incorrectly conflated with China's surveillance state. In practice . . . it is a public, relatively transparent system and increasingly curtailed in its reach. But the Chinese party-state has other, much more invasive projects at its command. (Drinhausen & Brussee, 2021, p. 19)

These include the Chinese party-state's security services.

This variability on the ground also comes out clearly in Knight and Creemers' (2021) research on SCS during the COVID-19 pandemic. They point out that the same features that make the system flexible, which are that there is no nationally unified system but lots of local adaptation, have also been weaknesses

since a unified national system might have dealt more effectively with disease control, but they further point out that the system is very uneven. There has been no use of big data or artificial intelligence to date in the SCS, as documented by Drinhausen and Brussee (2021), and in rural areas, the system is still paper based (as is the case with Aadhaar in India). As we have seen, the SCS is mainly targeted at companies and at ensuring that all organizations and individuals can be identified. All commentators on the SCS caution, however, that these early uses may lead to something more systematic in the future. This would be in keeping with Chinese policy making, whereby pilot schemes are trialed, which can then be scaled up with practices that work best. One thing is already apparent, however: Whereas the image of the SCS has been of a Big Brother state controlling people's behavior, the reality is that the state currently mainly protects consumers and commerce from shady or rapacious economic behavior—and to some extent from local government corruption. In India, meanwhile, known for its commercial scamming via call centers and the like (Poonam, 2018), there is little such protection, while the state's use of personal identification for welfare services is so far the main use of the system inching forward.

Comparisons

Lessons From Sweden and the United States

To begin the comparison, it is worth returning to the Swedish system, which has already been mentioned briefly. In Sweden, a person number for each citizen has been in operation since 1947 and is subject to strict regulation. The person number consists of 10 digits and serves as a personal identifier for many essential everyday functions, including payment identification, tax records, population surveys, and health records. It is used for social welfare and tax purposes and for commerce mainly as a form of validating identity. Sweden's system of personal—now digital—identification has, in fact, become all-encompassing. It is worth pointing to the Swedish example for three reasons. One is that a system that links personal data seamlessly across many areas of daily life can function efficiently, including having the trust of most Swedish citizens. The second is that while there have been some scandals in relation to this use of personal data, Sweden is an open, transparent, and accountable society, so after vigorous public debate, controversial uses of data have been resolved (Axelsson & Schroeder, 2009).

The third relates most closely to comparison, which is that centralized systems like Sweden's can be usefully contrasted with systems such as that in the United States, a country that does not have such a unified system and where the government and other bodies have no identification system that can be used in an interlinked way for the provision of welfare and other services. The Social Security number, which comes closest to a national ID system, is not universally used, and its uses have been strictly limited on a number of occasions by lawmakers because of many instances of fraud (Bej, 2019). The Swedish system also does not enable coercion in the manner envisioned for China's system, nor is it a system that lacks the infrastructural capacity to be used seamlessly and consistently across the whole population—unlike Aadhaar.

Sweden therefore shows that a personal identification system does not necessarily lead in the direction of a surveillance state. Although Sweden has had a populist party seeking to restrict immigration in parliament since 2010, the party is only one among several, and its exclusionary welfare chauvinist policies have to date influenced Swedish politics only to a limited extent and not changed its system of

personal identification. Modi's government is also populist, but his Aadhaar policy is part of a wider effort to register citizens to enable his exclusionary populist policies via the National Citizen Registry. In short, Sweden's personal ID system is pervasively used, but it is not politicized in an authoritarian or populist direction. Its commercial uses sit alongside and are separate from uses for state services. Further, there is no linking of the personal ID to digital media uses, though, of course, digital media like Facebook and Google can target and tailor their messages to Swedish users by other means.

In the United States, personal data are different since there are no universal personal identifiers—as mentioned, the Social Security number is a partial exception—and the United States is otherwise far too diverse in its personal record-keeping system to allow for systematic and linked data uses. The other exception, systems that allow the assessment of "creditworthiness" are used mainly in the private sector. Lauer (2017) has charted the history of the American credit ratings industry, dominated by three firms and with $156 billion in revenue in 2012 (p. 275). He documents how this industry has thousands of data points on hundreds of millions of consumers around the world. But a key point is how this industry has moved from providing analysis of creditworthiness to becoming central to consumerism as such. "As the leading bureaus moved into database marketing—serving, in effect, as list brokers and consumer analysts—the line between their credit reporting and marketing operations blurred" (Lauer, 2017, p. 259). In terms of the relevance of the United States for India and China, it is important to note that this penetration of consumerism, conjoined with datafication into people's lives, is bound to advance. But there is no zero-sum game as between the state's uses of data and commercial ones. They are orthogonal, and consumerism has no inexorable exploitative "logic." Instead, it has rather diffusely become part of everyday life (Schroeder, 2018). There are other comparisons with the United States whereby, for example, the census and voter registration processes have become politicized because they tie to contentious political issues (ethnicity and immigration on the one hand, and elections on the other).

Contextualizing the Indian and Chinese Systems

The systems of personal identification thus tie closely to the political and other systems of their countries. The Aadhaar and SCS systems reflect their dysfunctional (India) and authoritarian (China) politics, as well as commercial opportunity seeking in both countries, but they also reflect a more general drive in all countries to incorporate citizens and target and tailor services and products to consumers. This is not an issue of neoliberalism or unfettered capitalism in China and India since their economies display neither, and they are not like Western capitalism. In the case of China, Naughton (2020) describes economic policy as "grand steerage," which includes a national economic strategy with a technoindustrial policy broadly supported not just by elites but also by the middle classes. Modi's policies have increasingly gone in the direction of economic nationalism (Naseemullah, 2017; see also Manor, 2020), in line with his populist politics.

Economic inequalities have grown in both countries, but citizenship rights have had a mixed record, being extended further and also curtailed in certain respects. Citizenship rights in relation to personal identification have perhaps had their greatest negative effects in relation to those parts of the population that the state regards as dangerous in both countries and made them subject to greater surveillance. These include Naxalites and the populations of Kashmir and Jammu in India and the Uighurs in China. This is not to do with Aadhaar and the SCS but rather with the security apparatus in both countries. In any event, the

main thing that the state needs to provide in both cases is more free and equal rights—plus security against economic disadvantage, including protecting consumers and workers from exploitation or unfairness.

Geopolitical Tensions

One idea that needs to be addressed here is the question of data colonialism. This idea has been put forward to indicate that the capitalist imperatives of digital technology companies colonize people's lifeworlds. The added implicit idea here is that digital technology companies from the Global North colonize not just the lifeworlds but also the economies of the Global South. These two ideas—colonization of the lifeworld and of the Global South—are often run together (Couldry & Mejias, 2019), but we can focus here exclusively for the moment on digital media (we will come back to a wider scope in a moment). The impact of colonialism *on* China was historically comparatively minor, and Japan's war with China had a greater "external" effect. There is also no obvious sense in which data colonialism is currently emanating *from* China. The question that is being posed is whether China is in fact engaging in its own colonialism in Africa (Lee, 2017) or via its Belt and Road Initiative (Freymann, 2020) and over its own minority populations in Xinjiang. It is too early, in terms of data governance, to judge whether there will be a "Beijing effect"—on the model of the EU "Brussels effect" (Erie & Streinz, 2021)—whereby Beijing's rule will slowly be adopted in a kind of push-and-pull model. Nor are Chinese or American digital media companies exercising unfettered data colonialism in India, as was seen in India's rejection of Facebook's Free Basics and in the TikTok spat in 2020, when Modi's government banned various Chinese apps (Mishra, Yan, & Schroeder, forthcoming) over a border conflict with China.

If not data colonialism, what about "surveillance capitalism" (Zuboff, 2019)? Yet it is unclear if this applies to countries like China, which is not capitalist in any straightforward way and where American digital media companies are kept at bay. In Europe, without any large-scale digital media companies of its own, there is resistance to the main companies that Zuboff (2019) focuses on (Google, Facebook, and the like) in terms of data regulation and privacy policies. Turow (2017), as mentioned, has described how consumers are being targeted by digital media and other companies using marketing tools, but consumers also embrace their services. If they are being colonized, perhaps they enjoy consumerism and are willing to be targeted by advertising? In any event, the uses of advertising to consumers is not a new phenomenon but an intensification of an older one dating to the rise of mass consumerism (Beniger, 1986), going back in the United States at least to the 1920s and 1930s.

The systems in Europe whereby digital media identify individuals have been affected by the General Data Protection Regulation and other regulations. This European legislation and these regulations are increasingly seen as "best practice," but the United States and Europe (including Sweden) increasingly digitize many government and consumer services. What has been discussed more widely than either of these are the effects of data-driven news and media consumption. These effects are too far from the topic of digital personal identification to summarize here, but they are, of course, separate (see Schroeder, 2018). To be sure, it is important to gauge the influence of American digital companies in China and India and beyond in the Global South. Yet the effects of data-driven news and media consumption are primarily national and limited to national media systems. As for the Global North and South, the asymmetries of economic relations between rich and poor countries are well known and have much deeper roots than digital

technologies. Apart from historical injustices and asymmetric relations of force and economic exploitation, the most lasting legacy of colonialism and imperialism in India and China relate to state capacity, weakened by British and American imperialism in these two cases but to varying degrees in the developing world (for example, Kohli, 2020). Though, as Kohli (2020) points out, "both China and India in the more recent period . . . underscore the progress that can be made when sovereign and capable states direct socioeconomic development" (p. 412).

The debate concerning digital infrastructures in Western democracies has recently focused on "platform governance" with two main issues: free speech and data privacy. Free speech in India and China, again, is shaped by their national media systems and politics. It has been corroded but mostly intact in India and exercised only within the limits set by the government in China. The data privacy issues of Aadhaar and the SCS are still too fluid to allow drawing definitive conclusions, but the implications of the two digital infrastructures can be put more usefully into the context of models of societal development or of national innovation strategies. Digital India is hampered by weak infrastructure, but Modi is continuing a strategy whereby digital technologies are seen as a key to development, a strategy that dates back to Rajiv Gandhi's period as prime minister from 1984 to 1989. In China, the top-down drive for infrastructural development is bulldozing forward and the main question is how responsive it will be in protecting citizens rather than becoming a surveillance apparatus.

In both countries, the systems are shaped primarily by national forces, relatively unaffected by geopolitics, and even by the competition between "platforms." To be sure, as mentioned, there is competition among digital technology companies, as the TikTok clash attests, also in relation to how former U.S. President Trump used TikTok (and Huawei) data policies in trade wars with China (and the Biden administration is not so different in this regard), but the two personal identification systems are largely separate from these trade skirmishes. Geopolitics includes not just the high-tech ambitions of India and China but also manifests itself in these economic clashes. Geopolitics have been in the background here, mainly because of the widespread perception, promoted by political and economic elites, that a high-tech digital future is vital to national well-being. In actual fact, the digital part of the economy plays a limited role, for example, in terms of creating employment, and ideas about digital futures are often exaggerated, increasingly so in China's high-tech industrial strategy. Modi's efforts to present himself as a bringer of high-tech development is widely popular but also fails to live up to realities on the ground.

It is, of course, hard to compare the use of personal data in well-functioning liberal or social democracies with personal data in an authoritarian country and a highly imperfect democracy of more than 1 billion people each. Yet the comparison can highlight that it is possibly not so much the technical and security issues of the system, which are often foregrounded, but rather the social conditions of the accountability of the regime on one side and the public's trust in government on the other, that matter most. The main changes with the digitization of personal records are twofold. One is that records are more easily linked, so they can be analyzed and used for policy and other implementations, and the second is that their functions can more easily be expanded and there is "function creep" in the ever more extensive and intensive use of the systems.

Both systems share some features, even though they are technically quite different and vary in their implementations. Both consist of a unique ID that ties together a number of political and economic services. They are also tied to the very rapid adoption of smartphones, while China is still some years ahead of India in this regard. Unique ID is currently at the top of the agenda among development organizations (Gelb & Diofasi Metz, 2018) and focused on smartphone uses. For India and China, it is true that both Aadhaar and SCS are bound to be used much more in conjunction with smartphones than personal identification systems in the United States or Europe, where these systems have longer histories.

Perhaps a more important dimension is the strength or otherwise of independent institutions and of law. Privacy law is strong in theory and weak in practice in India because of a feeble state, and strong in theory in China but weak in practice since it is governed to serve the ends of a forceful party-state. Another major driving force is civil society and how it pushes for law and regulation. Thus, in India, independent courts are also important, as we saw in the restriction of Aadhaar to certain government services. The combination of civil society and law was also evident in the controversy over Free Basics, which was successfully resisted. It also applies to China, where local grassroots protest is possible to a limited extent, even if it will be less possible to protest nationally against the government's digital industrial policies.

In China, too, there have been strong pushes for legal protections of data privacy in the private sector, mostly for consumers rather than for citizens (for the latter, there may be laws too, but as we have seen, these are overridden by ideas about the common good). The governance of digital identifiers is thus subject to contention. In India, the Aadhaar system has encountered vigorous opposition from civil society groups, though as we have seen, the "State of Aadhaar" report (Totapally et al., 2019) presents a mixed picture about public opinion more broadly. In China, apart from public opinion, the main concerns that have been aired in the public arena concern how data privacy needs to be strengthened to ensure business innovation, while the concerns of civil society are muted. These are the crucial forces shaping the futures of the two systems.

Conclusions

China and the United States currently dominate commercial digital infrastructure development, but in different parts of the world. China maintains an exceptional degree of cybersovereignty, but it is also expanding into foreign markets while the United States dominates the rest of the world. Europe has little share in these markets, but it has taken the lead in personal data privacy and content regulation. Europe has otherwise taken a free market approach, but economic nationalism is on the rise in many parts of the world, including in the United States, China, and India. The argument presented here goes against the grain of existing analyses of the two systems: against the idea of an Orwellian top-down surveillance state, the article has argued that the SCS can be seen instead as a strategy of policy experimentation combined with function creep amid a wider extension of digital services aimed at social development, and against the idea that Aadhaar is a tool for general social development. It has been argued that the Indian system, in fact, reflects the divide between the extension of a feeble welfare state to the most disadvantaged and the consumerism of a nascent urban middle class.

What notions of "surveillance capitalism" (Zuboff, 2019) or "digital dictatorship" (Pan, 2020; Strittmatter, 2019) or "data colonialism" (Couldry & Mejias, 2019) overlook is that market power is diffuse rather than concentrated and coercive. Further, in these two cases, it is mainly the balance—or rather the imbalance—between state and market and their intertwining that shapes the two systems. Corruption because of the overlap between business and officialdom is rife, and attempts will continue to counteract it. In China especially, one of the main uses of SCS to date has been to rein in fraudulent companies and to protect citizens against scammers. The uses to reward and punish behavior are far behind, but they apply mainly to debtors. The welfare state will tie citizens to the state via social services, but this is tied to ideas about credit risk and social discipline in the case of SCS (Knight, 2020; see also Zhang, 2020) and seeking legitimacy via providing welfare services and developmental policies in Modi's case. Yet the bulk of the commercial uses of both systems, insofar as they are used for payment and obtaining credit, will deepen consumerism. Both are part of longer-term processes of the datafication of both citizens and consumers, an ongoing rationalization by means of quantification (Dandeker, 1990; Mau, 2019).

Against this background, some future options can be spelled out. In India, a key question will be whether the Aadhaar number will be required only for access to government services, as per the current court decision, or if it will be used much more widely. If used for e-commerce, the Aadhaar number could become a means of engaging with consumers in the manner of China, though with a weaker system of protections in place since the Chinese government has a much stronger infrastructure. Inasmuch as the Aadhaar system is regarded by the government as the key to a digital India, Indian companies that will be able to take advantage of e-commerce are not in a strong position despite their cozy relations to the government. Foreign digital e-commerce and media giants, meanwhile, have the advantage of an increasing foothold among Indian consumers. In China, the fears of an Orwellian state controlling behavior are bound to continue to dominate Western discussions, but the SCS can instead be seen as continuing a tradition of Chinese governance, which shapes the morals of its population, an effort that is led by a stratum that is regarded as having an exemplary moral standing. In this way, "performance legitimacy" will guide the deployment of the SCS system. Again, consumerism will prevail in China, but in this case within a nationally bounded system in terms of the regulation of data privacy.

What will states want do with the system? They will want greater control and efficiency in their dealings with citizens, especially in relation to taxes and welfare services (which include health), likewise with companies and their services and products. Bureaucratic organizations, not just states but also companies, want to capture their populations by means of digital databases that also give them the opportunity to analyze the data. Citizenship plays a central role in digital ID, but India has civil and political rights, even if they are fragile in practice. In China, civil and political rights are outweighed by the authoritarian party-state, but the focus is on social rights in regard to which the societal good is prioritized over individual rights. For media and citizen identification, China is autochthonous while India has a national media system but with foreign media companies playing a role. In India, data privacy has much weaker enforcement and will need strengthening both in law and in practice.

In India, the development and governance of Aadhaar will depend above all on future changes of government. Up until the next national election in 2024 and so during the remaining Modi years, there is the danger that the system will continue to be used to pursue his populist politics. That can change. If other

parties come to power, also in some of India's states, they may have different agendas. In the private sector, there will be influence from outside the country in relation to digital data, far more so than in China, but India will also maintain a great degree of control over foreign companies, as it has done in the past. China, on the other hand, will keep control of the SCS so that the system can be put to authoritarian uses. In both countries, the uses of the systems will be held in check by civil society and legal pushback, though in India to a greater extent. In China, companies will continue to do the government's bidding, collaborating with it in a national economic strategy and curtailing citizens' online expression. China's government has also been subject to periods of greater opening alternating with periods of tighter controls. Finally, the systems in both countries will continue the drive for greater rationalization (Schroeder, 2019), "caging" their citizens but also enabling them with greater access to services. The same applies to economic rationalization, with companies seeking to capture consumer behavior more intensively and extensively. This is a complicated picture but also one that is less simplistic than Zuboff's (2019) "surveillance capitalism," Orwellian all-seeing states, or a few large American digital media companies bestriding the globe.

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