

## Capitalism without Surveillance?

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Shoshana Zuboff, *The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power*. Profile Books: London, 2018. 704 pp. £39.99 Hardcover.

The young people in my family deflect my obsessive complaints about their use of social media by calling me the Unabomber. It is a playful insult suggesting that my fears and hectoring about Facebook and its affect-mining subsidiaries are gauche, hysterical and anachronistic. It is also an acknowledgement of real danger. They know — thanks to the Netflix docudrama — that Ted Kaczynski, who would later earn the nickname, was subjected to brutalizing experiments by the psychologists when he was a student at Harvard. They are acknowledging that there is something especially distasteful — horrifying is not too strong a word for it — in the exploitation of young people's emotions that is shared in the intellectual and biographical connections between that university's psychological experiments and the social media monopoly that was born there.

In Shoshana Zuboff's new tome *The Age of Surveillance Capitalism*, the critical discussion of Facebook's engineering of addiction to the social network emerges surprisingly late — arriving as an emotional crescendo at the end of the book (after the reader's attention has been dulled by the repetition of overblown claims). But Harvard and, especially, the psychology department feature much more prominently throughout the book. The core argument is a lament about the unnoticed return to global influence of the instrumentarian psychological theories of B.F. Skinner, who developed his behaviourism in the same labs that tormented Kaczynski, and still ruled the psychology department when Zuboff was a graduate student in the early 1970s (Chomsky, 1971; Skinner, 1965, 1976). If Zuboff is correct, the development of surveillance capitalism marks the global ascendancy of a small number of monopoly firms who use control technologies — as Skinner recommended — to record, measure, predict and shape human behaviour. In the process, she argues, they have overthrown the basic operations of democracy and capitalism itself.

These are colossal claims that probably cannot be demonstrated, and it is fair to suggest

— as Zuboff does in the conclusion — that the real task is a rhetorical one: to ‘regain our bearings, to stir others to do the same, and to found a new beginning’ (p. 490). In this — aided by her position as an emeritus professor at Harvard Business School — she has unmistakably succeeded, with high-profile reviews and profiles in the *New York Times*, *Washington Post*, *Guardian* and the *Financial Times*. A year after it was first released, the book is still the best selling in Amazon’s Free Enterprise and Information Theory categories. (As I write this, the *New York Times* features an op-ed by Zuboff that recapitulates the content of the book, minus some interesting details.) It is rare to sit through a dinner without people invoking her book, often followed up with the admission that they have not actually read it. Sales are arguably the most important measure of the success of academic arguments, and like Piketty’s *Capital in the Twenty-first Century* in 2014, this book diagnoses a crisis and marks the moment of its global visibility. Yet, the two books are also fundamentally different. Piketty’s works by relentlessly assembling new — and previously unknown — bodies of compelling evidence in each chapter; it also camouflages its radicalism behind carefully assembled and presented data. *Surveillance Capitalism* works in the opposite direction. It has many compelling (and original) insights, but it relies on well-known journalist accounts, loose associations and the constant repetition of purple hypotheses that are laid out at the beginning and remain, at best, speculative at the end. The largest theoretical claim is similar to Martin Sklar’s study of the corporate legal and institutional reworking of the American economy a century ago that ‘gave to corporations ... the power, for regulating the market, and ... assigned to government the secondary role of regulating the corporations’ (1988: 382). In Zuboff’s account, the ascendancy of surveillance economics at Google and Facebook has produced a ‘new economic order’ of total control that threatens ‘market democracy’ and marks a rupture with the basic forms of 20th century capitalism in the West.

## **SURVEILLANCE AS IMPERIALISM**

Zuboff takes her theoretical direction from two of the great emigré philosophers of the 20th century. The first is Karl Polanyi. She ties his double movement argument — that the social destructiveness of unconstrained markets triggered a reactionary network of institutional

countermeasures — to the Fordist reciprocities, and corporatist prosperity, of 20th century capitalism. And she returns repeatedly through the book to his warnings about the dangers of unconstrained markets, adding Google's unregulated invention of behavioural data to Polanyi's three basic commodity forms: land, labour and money.

The second philosophical guide, and the model for her rhetorical and political intervention, is Hannah Arendt's (1951) *Origins of Totalitarianism*. Her book adopts the same prophetic stance: naming an unprecedented, and poorly understood, form of political power as the first step in the organization of resistance. There are also many similarities in argument. She draws parallels between Arendt's point that totalitarianism worked on the basis of the 'engineering of the soul' and her own description of surveillance capitalism's agnostic, insatiable obsessions with the meta-data of personality: 'Trained on measurable action, it only cares that whatever we do is accessible to its ever-evolving operations of rendition, calculation, modification, monetization and control' (p. 332).

The similarity between the new, unregulated domains of cyberspace and Arendt's observations about the unconstrained forms of capitalism that were possible in the British empire is another consistent theme. Again, there are important differences — not the least of which is a late 20th century parochialism. Arendt's study (1951: Chap. 5) derives its model of imperialism from the specific, indeed peculiar, conditions produced on the Witwatersrand in the 1890s that are described in Hobson's (1902: Chap. 4) *Imperialism*; it carefully avoids claims about the sweeping blankness of empire in 'Asia and Africa' that echoes through Zuboff's claims of the 'twenty-first century equivalent of the "dark continents"'. She returns to this theme of empire renewed — of the invention and usurpation of property that is possible in the absence of incumbent institutions and territorial regulation — in arguing that Google's behavioural surplus is a new instance of Arendt and Marx's primitive accumulation. This is, in a very deliberate sense, fighting talk, driven by an eschatological project. Zuboff is making a political effort to reawaken the regulation of surveillance, at least in the liberal democracies.

It is Google (not Facebook) that plays the role of the primary villain in Zuboff's explanation of the rise of surveillance capitalism. She shows that in late 2000 the company turned — in panic, and by accident — to the exploitation of users' search histories (which it had been gathering absent-mindedly as research data) as the dot-com crisis began to obliterate speculative investment finance. She calls the harvesting, profiling and commercialization of the

details of every Google user's search practice the invention of 'behavioural surplus' and describes it as the equivalent of Marx's account of primitive accumulation in the enclosure movement — 'the original sin' in the making of capitalism. Modelled on Arendt's (1951) account of imperialism in *The Origins of Totalitarianism*, Zuboff's analysis presents cyberspace as a virgin legal domain in which the pioneering companies — like the former colonial powers and their mining allies — are able to define and usurp resources because they precede the law and regulation. Much of her account follows now familiar forms of coercion supported by the technologies of surveillance: applications that require the surrender of privacy as a basic condition for working properly; companies that ignore and outlast public outrage in the knowledge that regulators cannot keep up with them; privacy statements that are designed to be exhausting and, literally, incomprehensible. But she also argues that these practices break with the long-established principles of corporate capitalism. The founders of Google and Facebook have designed shareholding governance arrangements that strip their investors of decision-making power. Their software products, and legal devilry, equip the companies with complete mastery of both sides — and any future developments — of the terms of contracts.

Zuboff reminds us that the surveillance capitalists nurtured this kind of political influence and real power long before the Cambridge Analytica scandal. It was the Obama campaign in 2008, working closely with its allies at Google, that pioneered the individualized political profiling of hundreds of millions of Americans, and the scoring, based on online behavioural profiles, of wavering voters. Cheryl Sandberg's career reflects these close links neatly: she moved from a position as chief of staff of Lawrence Summer's Treasury Department in the Clinton administration to Google's AdSense programme in 2001, and then to Facebook where she was responsible for converting the 'social networking site to an advertising behemoth' (p. 92). (In describing Sandberg as the 'Typhoid Mary' of surveillance capitalism, Zuboff can fairly be accused of not 'leaning in'.) In the federal and state legislative lobbying mess, the surveillance firms now outspend all of their rivals, adding to the difficulties of applying the existing monopoly and privacy regulations or developing new law.

These revelations about the surveillance economy are now fairly widely known and uncontroversial (it is certainly useful to have them assembled in one book); Zuboff's first big, new claim is that all firms are scrambling to follow Google's example. Producers of cars, refrigerators, home automation systems, insurance policies — Zuboff sees them all following a

new strategy of profit making from behavioural surveillance, a new system-wide logic of what Weber described as the ‘economic orientation’ of technological systems. Most of the examples that she has for this shift come from the public announcements of CEOs and other company boosters, but she also presents some evidence from the engineers inside the programmes. One of these anonymous informants presents the most compelling explanation of the systemic shift to the mining of behavioural data that she is trying to demonstrate : ‘Then you learn that any time you plant a nail in a board with your machine learning hammer, you can extract value from that formerly dumb plank. That’s data monetization. What do you do? You start hammering like crazy and you never stop, unless somebody makes you stop. But there is nobody up here to make us stop’ (p. 225). This is eloquent and frightening, but it also — like Zuboff’s book — ignores the power of existing institutions and law that regulate privacy, and their histories (Bennett, 2008).

Zuboff also points to the links between the ascendancy of the surveillance firms and the explosion of popular discontent about inequality that became visible in the rich countries — perhaps for the first time in two generations — during the 2011 riots in the United Kingdom. The riots coincided with the celebrations of Apple’s meteoric success in marketing iTunes and the iPhone as indispensable tools of self-fashioning — producing ‘more profit for investors than any other US company’ in the 20th century (p. 33). Again, there is an omission in Zuboff’s discussion that is important because it demonstrates — before the Arab Spring turned to Winter — the Janus face of social media politics and, especially, the economic hierarchies of privacy. The tool that the rioters used to marshal people on the streets was Blackberry Messenger (BBM). During and after the events it seems clear — although there is no proof — that the British police were also able to use the BBM records to support the rapid identification and prosecution of 2,000 people, through accessing phones directly and working in cooperation with the company (Dodd, 2011; Halliday, 2011; Kadivar, 2015). The British riots did, indeed, signal the crisis around inequality (and growing mistrust of the police). But they were arguably more significant in marking public realization of the effects of the precise incriminating record left by free social media networks on the balance of power between the state and citizens. This had consequences for the company that are also revealing. They punctured Blackberry’s much-vaunted reputation for privacy and security that had long aimed at corporate customers, and triggered the global corporation’s slow death. As the TV series *Black Mirror* and the *New York Times* Privacy Project

both show, in the liberal democracies, privacy is politically and institutionally potent. Zuboff knows this — notwithstanding her complaints about the decline of protest in the United States — and she is deliberately weaponizing it. With the exception of the relationship between the Trump re-election campaign and Facebook, her effort to reawaken outrage shows many signs of success. That is a unique achievement, marking her as one of the most influential scholars in this generation, but it is also producing a strange misreading of the way capitalism actually works.

It is uncontroversial that there is a planned, widespread turn to behavioural surveillance in the rhetoric behind the Internet of Things, as there is in insurance and financial products, and that — as Zuboff complains — our resistance to the bulk harvesting and analysis of our most intimate practices has collapsed over the last generation. But she goes on to make two further arguments that are much less obvious. The first of these is that a secondary market in behavioural futures is developing and that it is (or will soon be) a dominant new property form. To be clear, this would mean Amazon is using Alexa to vacuum up data about millions of individuals in households across the world, and then selling the resulting profiles (or, like Google's AdSense, some proxy version of them) to other firms. Unfortunately Zuboff does not provide any real evidence of how Google, Facebook, Amazon or Microsoft might organize this kind of secondary market — nor does she say a word about the data brokers and credit surveillance firms (Equifax, Experian and Oracle–Datalogix) that have been doing it for decades. Instead she powers on to an even more dubious proposition: that these forms of behavioural data mining will give the companies control — in the market and in politics. She has some evidence that the companies have these ambitions — the best is from Microsoft's ghoulish plans for the automation of the workplace where policy-compliant machines will apparently make decisions for witless human operators. But it is also clear that the engineers understand that there are powerful risks in these 'cool and creepy' technologies; they are generally silent or, occasionally, fiercely critical of these plans (Anderson et al., 2009; Schneier, 2015). For the fully worked-out philosophical case in favour of cybernetic control — of surveillance capitalism that deploys 'digital nudges' for profit, or more dramatic interventions like locking the guilty snacker's fridge or shutting down the car that is behind on payments — Zuboff returns repeatedly to Skinner.

This worry about the global domination of the 1950s behaviourists is intriguing. In the book, Zuboff ignores — pace Morozov's (2019) recent claims to the contrary — the cybernetic tradition that places informational control at the centre of the history of American capitalism.

(This historiography of the revolutionary economics of networked feedback systems is large. In US history, it tracks back from Evans and Schmalensee (2005) and Edwards (1996) through Beniger (1986), Hounshell (1985) and Chandler (1977), and includes Marxist critics, like Noble (1984), who examined the engineering of workplace automation a century ago.) Zuboff's first book *The Age of the Smart Machine* (1988) demonstrated how badly American workers respond to coercive and systematic surveillance and to automated conditioning; and how easily they develop gaming strategies and forms of sabotage that wreck the computerized surveillance fantasies of their managers. While we can probably agree that the virtues of the old vertically integrated corporations are more apparent in a world of zero-hours contracts and defined-contribution pensions, Zuboff's account of Fordism as a mutually enriching, reciprocal bargain between the largest corporations and well-paid, briskly consuming workers is misleading, at best. Her book has little to say about the links between Taylorism's surveillance of work in the last century and Google's ambitions in this century.

## **DEFENDING CAPITALISM**

In the face of the behavioural usurpations of the surveillance firms, and their advocates, Zuboff is interested in defending (and restoring) corporate capitalism — including its managerial and informational traditions. She chooses this ground deliberately: 'If there is to be a fight, let it be a fight over capitalism' (p. 188). In practical terms, this seems to mean encouraging Apple to hew away from the dark attractions of surveillance capitalism — a project that is (much like *Black Mirror*) about revealing the appalling consequences of abandoning privacy. Zuboff has done this effectively. But, in the process, she has also understated the long history and importance of surveillance in modern capitalism, especially its American versions. In contrasting Google's usurpatory surveillance with the socially beneficial Fordist corporations, the creepy behaviourists of her youth provide her with a pot of tar and a handy brush.

In other respects, Zuboff's book presents familiar criticisms of the era we routinely describe as the neoliberal epoch. To account for the collapse of the Fordist corporation she points to Jensen and Meckling's (1976) identification of shareholder value in their wildly influential paper 'Theory of the Firm'. Their explanation took an 'ax to the pro-social principles of the

twentieth corporation' (p. 42). This account of the attack on the socially oriented corporation is useful and interesting, as it draws out the important insights from Sklar and Polanyi about the virtues of 20th century political regulation. But it also neglects the constitutive element — in my view the driver — of the Friedmanite revolution.

It was the expansion of quantitative finance after 1971, and especially the ascendancy of the Black-Scholes-Merton options formula in determining option values, that broke the Fordist corporation. The new mathematical (and computational) method for predicting the future prices of options on equities triggered Jensen and Meckling's identification of managers' self-interested decision making within the firm. It also motivated the turn, especially after 1990, to stock options as incentives for executives (see MacKenzie, 2006: 328). Stock options gave managers irresistible incentives to drive corporate unbundling. Jensen and Meckling's work was, in this sense, much more a symptom of the financial revolution that Mackenzie tracked emerging from Chicago than a cause of the demolition of the vertically integrated corporation. The proliferation of stock options also encouraged — and was fostered by — the use of corporate debt to raise capital (because managers now had direct interest in avoiding the dilution of equity values), and the growth of the bond market. These, in turn, encouraged the explosive growth of credit rating agencies and the use of scoring techniques in risk management. Rating, as a tool for scoring risk, spread into almost all corners of the economy, motivating the proliferation of surveillance of firms all of their customers (Coombs and Heide, 2018; Marron, 2007; Sylla, 2002). Long before Google, credit surveillance had developed into a ubiquitous system of behavioural surplus value. Dating back to the 19th century in the US, it has had the instructive power that Zuboff claims that firms now seek (Lauer, 2017; Marron, 2009; Olegario, 2006). This will complicate any plan to separate 21st century surveillance from the earlier forms of capitalism.

Zuboff's training in psychology, and her long career at Harvard Business School, equip her with an unusual and interesting general explanation for the success of the surveillance companies, which she calls, following Ulrich Beck (1992), the crisis of second modernity. If modernity prompted the separation of individuals from the constraints of tradition, it also imposed gender hierarchies and norms that combined with 'predictable rewards' to eliminate potent questions of individual choice. Half a century later, a second modernity was produced by new institutions, infrastructures and values that produced baffling expectations of 'the right and the requirement to choose our own lives' (p. 39). The crisis of second modernity was triggered



by the gap between these ambitions for complex and difficult-to-determine individualities and the developing constraints in the economy, which increasingly stripped the levers of control from our lives. ‘As the rewards of late-stage financial capitalism slip beyond our grasp’, Zuboff puts it, ‘we are left to contemplate the future in a bewilderment’ (p. 49). The surveillance companies have stepped into this gap, providing the infinite resources of the Internet in ‘a thousand ways to anticipate our needs and ease the complexities of our harried lives’ (p. 56) and, perhaps most importantly, offer the appearance of absolute control in making distinctive individualities. This describes, precisely, the predicament of American baby boomers and their children, and what we might call the Instagram allure. But how can it be true on the global scale on which the surveillance monopolies operate? Are the billions of Indian, Chinese and African users of Facebook subjects of the first or the second modernity? This is, to put it mildly, not a problem that Zuboff finds interesting.

She is, instead, focused on the struggle to constitute a third modernity in the United States — this implies a choice, in the simplest terms, between two kinds of technologically formed information capitalism: one that is ‘self-affirming’, individualized, privacy respecting and democratic (read: Apple, or at least parts of that company’s project) and one that is systematically invasive, pre-emptively problem solving, collectively conformist and authoritarian (read: Facebook, Google and Microsoft). The book argues that we are already far down this latter path, and that it represents a perversion of capitalism itself.

If Zuboff has oddly little to say about the long history of cybernetic governance, she also skirts its most significant contemporary advocates — the behavioural economists Sunstein and Thaler — by arguing that the surveillance capitalists have adopted and perverted the techniques of the ‘digital nudge’ in pursuit of their companies’ profits. This allows her to return Skinner’s coercive behaviouralism to the centre of the drama. Using Alex Pentland’s ‘social physics’ lab at MIT as her example, Zuboff suggests that a host of ‘computational social scientists’ have sold themselves to the tech monopolies and reawakened Skinner’s plans to provide the moral and political arguments for a new instrumentarian society. Most of this is flimsily supported, and she does not demonstrate any meaningful intellectual links between Pentland and Skinner.

## **TOOLS OF SURVEILLANCE**

Zuboff makes a more persuasive (and interesting) case for Hal Varian's importance as the intellectual fountainhead of the Google business model. Varian is Google's resident chief economist, a position that he has held since 2007. He worked with the company for five years before he was appointed full-time, and he is acknowledged by Google managers as the source of many of the key elements of the firm's success, including the advertising auctions that have become the driver of their enormous profits. Yet, Varian is also an emeritus professor of economics at Berkeley, where he helped found the School of Information. His book on the economics of platform lockin, *Information Rules* (1998), co-authored with Carl Shapiro, was the bible of the dot-com boom, and enormously influential far beyond Silicon Valley (Breckenridge, 2019). Unlike Skinner, Hal Varian is still one of the most prominent figures of modern micro-economics, and especially its many, thriving computational subfields.

Zuboff points out that the key technopolitical principles of the surveillance economy emerged from Varian's work on computer-mediated transactions (2010, 2014). These described from four, linked and cumulative, stages in Google's behavioural data processing, namely 'data extraction and analysis': the insatiable appetite for immortal feedback data that is subject to continuous machine learning; 'new contractual forms due to better monitoring': the new ways in which computers can eliminate the ongoing requirement for the customer's consenting participation (Varian's examples are all taken from driving); 'personalization and customization': produced from the analysis of earlier transactions; and finally, and most importantly for the theory of surveillance capitalism, ubiquitous computer mediation makes 'continuous experiments' on products and its customers possible for the first time, and the only authoritative source for decisions in the firm (p. 66).

Where Varian suggests that computer-mediated contracts are an improvement, leading to more efficient (cheaper and mutually more beneficial) transactions, Zuboff focuses on their coercive effects. These are agreements in name only — they are Uncontracts formed without law; a herding technique that imposes 'automated machine processes' on the long-accepted traditions of 'legally-binding promises'. This economy, in which 'people always perform exactly as promised' (p. 314) produces what she describes as the uncontract dystopia — a world in which private firms can eliminate all the risks of negotiated and compromising human behaviour in their pursuit of profit.

Varian's model of data processing also means that the real value of behavioural excess lies beyond the basic facts of our behaviour that the firms vacuum up from their devices. Google and Facebook can show us the accumulated record of our interactions with their platforms because the invaluable predictions lie in the analysis, extraction and comparison against the vast archive collected from millions of other people. These relational facts are new, derived informational assets — and laying claim to them from within the existing legal traditions of intellectual property is going to prove difficult. The most valuable assets may be inferences based on other people's behaviour and data. 'When you download your "personal information"', she rightly observes, 'you access the stage, not the backstage: the curtain, not the wizard' (p. 453). Zuboff calls this backstage of data processing the 'hidden text', and it is an insightful way of understanding the limits of the new legal attempts to bolster our rights to control our own information.

In the popular concerns about surveillance capitalism — and in Zuboff's analysis — machine learning does most of the work of accounting for the power and success of the big firms. Google, Facebook, Amazon and Microsoft have built enormous infrastructures of data accumulation using oceans of feedback data and new chips and server farms that can extract order from the mess of infinite variety. Thanks to the cheapness and power of networked parallel processors, for the first time since artificial intelligence emerged in the 1950s, the scale of data has become the driver of more precise outcomes. Google's AdSense has eaten the lunch of the Madison avenue print advertisers (and much, internationally, that depended on it); the Facebook feed extends the profiling power of digital advertising to our individual and collective emotional obsessions. The success of this data-driven advertising is unmistakable, and its value is easily visible. The *Economist* reports that the online advertising market dominated by Google and Facebook was worth US\$ 180 billion in 2018. (The data broking market, dominated by Experian, Acxiom and Oracle — and the real secondary market in behavioural data — is valued at a mere US\$ 20 billion.)

The global advertising revenues controlled by these two firms (Facebook is fast overtaking Google) point to a different problem, and a simpler remedy, than those described in this book. Zuboff is right to stress the devastating consequences of the surveillance capitalists' assault on professional journalism. This is partly a matter of resources — of advertising revenues that were long used to fund professional journalists' salaries. The rapid decline of the daily

newspaper, and the demobilization of the army of journalists writing about local events, has, as she observes, removed the key instrument for distinguishing truth from falsehood in modern society. This is a critical insight. The collapse of the old journalistic assessment of sources is also a consequence of the data monopolies' unquenchable hunger for user-generated content. This is the reason that neither firm is prepared to exercise meaningful editorial restraint — by humans or algorithms — on the production of content. But the same insatiable need for user content is also a potential source of weakness. Setting aside, for the moment, the question of whether the problems of surveillance capitalism can be addressed by applying the substantial existing body of law and regulation designed to protect privacy and prevent monopoly abuse, the focus of policy reform should be on the retraction of Section 230 of the 1996 Communications Decency Act. This is the law that protects the online advertisers from the legal responsibilities that have always applied to other publishers (p. 109). Both Democrats and Republicans, with broad support from the firms in the real economy, including the data brokers, are currently busy with this reform.

The popular worry about surveillance capitalism, and the account Zuboff offers, both wildly overstate the capacities of machine learning outside of the world of advertising, and, more importantly, the possibilities for monopolizing the technologies and any surplus value they may generate. She quotes from the Introduction to Pete Domingos' (2015) impressive history of artificial intelligence — 'whoever has the best algorithms and the most data wins' — but what his book elegantly demonstrates is that the field of AI is fiercely contested, and that the most powerful critics of the reliability of machine-determined truth are the insiders (see also MacKenzie, 2001). Far from being reliable predictors of human behaviour (or desire!), even the lavishly supported and resourced neural networks can produce only provisional and tentative estimates of 'least error' from the mess of statistical hyperspace. That they do this with a degree of complexity that completely eludes mathematical explanation has prompted some of the key researchers in machine learning to describe them as alchemy renewed. Anyone who has noticed Google's online advertising pathetically offering up products you searched for three years ago should be able to see some of the limits of machine-based behaviourism.

Zuboff knows, of course, that the human subjects of machine surveillance — the subject of her first book — often do not react well to the experience of being continuously nudged. Computers can be pathetically helpless in the face of the well-elaborated human capacity for

bloody-mindedness: a nice example of the common, but typically invisible, reaction is the human harassment of Google's self-driving cars in Arizona (Romero, 2018). A similar (probably deliberate) oversimplification applies to her fears of the firms' monopoly of indispensable programming skills. Relying on the proliferation of online classes, instruction videos and open cloud processing platforms and languages, machine learning is exploding as a basic skill — with huge numbers of students in the Ivy League and the poorest universities on the African continent scrambling to learn Python. Notice, however, that this is all happening at exactly the time that algorithms are doing much of the writing of code themselves. Capitalism likes to generate its own self-limiting crises. This points to the final problem with the claim that the firms are using their control artificial intelligence to entrench their monopolistic controls over accurate and reliable predictions (and shapers) of all human behaviour. Zuboff presents the surveillance firms as agents of a unified instrumentarian hegemony at the expense of ordinary consumers. But it is worth remembering that conflict is real in the digital economy. Like Microsoft before them, Google and Facebook have been able to use their equity capital and monopoly profits to defend themselves from competitors: Facebook's US\$ 19 billion purchase of the WhatsApp messenger makes this point about the consequences of monopoly power. But they also operate in a world of existential competition, both in their own conflicts (Microsoft against Amazon, Google against Facebook), and against others, like Oracle, that have long dominated the surveillance economy. In these conflicts the lobbying efforts of individual firms, which Zuboff discusses in some detail, aim at the throats of other companies (Grimaldi and Mullins, 2020). Something similar is happening geopolitically. And policy recommendations will need to keep these terrains of conflict in mind. Finding allies in the effort to regulate Google and Facebook as monopolies is likely to be simpler than inventing a new property right in behavioural data, or eliminating behavioural surveillance from the economy.

In Zuboff's account, the Chinese firms scarcely exist, and where they are mentioned they function as proxies for the totalitarian plans of the Communist Party. Yet, especially outside the United States, Alibaba and Tencent (and others like Baidu and Huawei) show many signs of capturing the heights of the global surveillance economy. This is important beyond the virtue of escaping provincialism, because the technological competition between the Chinese and the American firms is likely to play out on terrain shaped by the growing concerns with privacy regulation and data ownership in Europe and the United States, which will wickedly complicate

the policy solutions Zuboff puts forward. This regulatory struggle is also likely to shape how those outside of Europe and the United States — the vast majority of the human population — will fit into the surveillance economy.

The surveillance technology that Zuboff sees as the ‘apotheosis of instrumentarian power’ (p. 365) are China’s social scoring systems, which have been developed, with the encouragement of the central bank, by Alibaba and Tencent over the last five years. The scores, notoriously, attempt to shape behaviour explicitly and to allocate access to resources — including train and plane tickets — accordingly. This can encourage exactly the kinds of behaviour satirized in *Black Mirror*: people, according to the *Wired* journalist who wrote about the score in 2017, pruning their address books of disreputable friends and hustling to gather high-scoring contacts in the Alipay network. Zuboff points to the devastating consequences of people finding themselves on the blacklist for failing to pay back debts or traffic fines: they ‘can be prevented from buying aeroplane, bullet-train or first- or business-class rail tickets; selling, buying or building a house; or enrolling their children in expensive fee-paying schools’ (p. 367). She attributes much of the popularity and power of the scoring technologies to the collapse of trust in communist China, and she concedes that there is, already, some conflict between the state and the two dominant firms, Alibaba and Tencent, over the control and exploitation of the data. The Chinese, she suggests, have become accustomed to the state’s systematic intrusion into the private sphere. And she concludes that the scores usher into being a ‘machine solution that shapes a new society of automated behaviour for guaranteed political and social outcomes’ (p. 369). There is much about the Sesame credit scores that is troubling — the companies’ (and, presumably, the state’s) abilities rapidly to shape behaviour on a scale of hundreds of millions of people, their effects on conformism and potential for authoritarian control (as seems to be the case in Xinjiang). But Zuboff’s deliberate attempt to separate the Chinese scoring system from the existing US credit scoring infrastructures is also revealing.

The Chinese system is a direct descendent of the cooperative credit reporting and scoring apparatus that is applied to all Americans and most Europeans (although, interestingly, not the French). These scores date back to the Second World War, but they grew in power and geographical scale when the credit bureaus began to adopt computers in the 1960s. They are directly linked to the practices and institutions of firm credit worthiness that date back to the 18th century, and to retail credit systems offered by department stores from the 1860s. Today the

scores cover all Americans, and they are available to anyone who can pay a subscription to one of the credit bureaus. One third of Americans fall into the category of sub-prime creditors. In South Africa fully 40 per cent of the 25 million active credit users have an impaired score. (The size of the Chinese blacklist is hard to establish but it seems to be much smaller; the Chinese data is also, of course, much younger). Credit scores are routinely — and legally — used in the United States by landlords in the selection of tenants, by prospective employers in appointing workers, and by lenders in targeting borrowers. Defenders of the Chinese scores might ask how being denied access to first-class tickets and private schools compares to the allocation of housing, work and precisely targeted predatory loans.

Comparison is not what really matters here. The main point about the importance of credit surveillance is that it lies at the core of the Fordist project that Zuboff believes is the alternative to Google and Facebook. As many historians have shown, it was the explosion of credit to purchase cars in the 1920s — and the development of specialist sales finance companies — that expanded credit surveillance through the American economy. For most of the 1920s the Henry Ford resisted sales on credit, but by 1928 the company had joined its competitors in offering customers financed sales through a specialist lender. It was the shared reporting on these short-term, high-interest loans, their repayment and defaults that lay behind the universalization of credit surveillance (Jentzsch, 2006; Lauer, 2017; Marron, 2009; Olegario, 2006; Olney, 1991).

Zuboff is surely right to be calling for a renewed political effort to confront and control the monopoly surveillance firms. Her targets should probably be expanded to include (once again) regulation of the credit reporting and profiling companies, Experian, Transunion and Oracle. Google and Facebook are textbook monopolies and they should be broken up, as Warren and Sanders have both argued. The existing systems of law and regulation — whether it is the European Union's General Directive on Privacy Regulation, the California Consumer Privacy Act or a new federal act — can all do much to bolster privacy in the rich world. That will create new incentives for regulatory arbitrage in Africa, China and India that will, in the long run, shape the character of surveillance everywhere. Imagining a world of capitalism without surveillance — a boutique information economy produced by Apple for those who can afford it — is not likely to solve those problems.

## About the author

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