Automating the Labor of Decision:
Placing Cost-Benefit Analysis within Contemporary Capitalism

Introduction

Over the decades (perhaps centuries) of its existence (Jiang and Marggraf, 2021), cost-benefit analysis (CBA) has become notorious among many popular movements. This is because capitalist states have used it to push through tens of thousands of unpopular social policies or development projects including hydroelectric or nuclear plants; roads, airports, pipelines and high-speed railway lines; large-scale agriculture or irrigation schemes; privatization of pension, water or health provision; and deregulation of pollutants (Lohmann, 1999). "Are there drawbacks to these schemes?" CBA reasoning goes. "Sure. We don't deny it. But if you convert all the pluses and minuses all across society into numbers and sum them, the benefit-to-cost ratio is more than one. Some people might lose out, but overall the gains will be greater. As democrats and utilitarians, we therefore should go forward with these schemes. At bottom, they're what we want and need as a society."

The aim of this chapter is to help carve out some new conceptual footholds from which popular movements defending their life-spaces might contextualize, analyze and contest this reasoning. The argument is far-ranging and proceeds in several steps. Its first, classically Marxian premise is that capital cannot be accumulated in the absence of living human labor (Marx, 1867). Second, the core of this living labor – and the deepest source of what Marx called surplus value – is interpretation and cognition (Lohmann, 2020), and in particular decision-making. Third, the many-sided, complex ability to make these decisions – part of what Marx called labor *power* – derives from myriad springs in biological and social evolution and reproduction. It is born and developed not only from the creation of languages and cultures over thousands of years, but also from the household commons in which each young child, over further years, takes on this heritage anew for her own. This labor power is also ecological, in the sense that it is constructed out in the open. Young children's "causal connections with the rest of the world" (Davidson, 2004: 84), including a variety of adult models as well as other animate and inanimate companions, need to be observed and reacted to by a community over years if the community is to help the children learn language and many other skills and thereby become productive workers. In taking hold of this labor power, capital is thus doing what it does with any seed, fruit or mineral ore – isolating, scooping up and deploying for profit, as cheaply as possible, the riches, sedimented over millions of years, of what it did not and never could have made by itself. Fourth, this process of appropriation comes with a catch. It "maxes out" (Moore, 2015) what it appropriates, so that eventually it can no longer generate surplus – a process that precipitates repeated, ever-worsening capitalist crises.

The proposal of this chapter is to place CBA alongside other strategies that capital adopts that both (1) facilitate this appropriation as circumstances change and (2) carry forward the degradation that inevitably accompanies it. The comparison that the chapter pursues in particular detail is with the Industrial Revolution's attempt to automate labor processes in the modern factory.

In order to develop this analogy, the chapter rereads the central contradiction of industrial mechanization as follows. Capital needs its workers to be able to make creative choices in changing circumstances. But it also needs those choices to be as close as possible to the "right" ones for accumulation. Unfortunately for capital, obedience always implies the possibility of disobedience. Lay down any rules for workers about how to take decisions and they can usually find a way to

subvert them by taking them too literally ("work to rule," "soldiering") or failing to provide the supplements, improvisation or discretion that all rules need to be effective. If capitalists have in mind a right way of doing things, there will also always be a wrong way that equally "follows the rules" (Wittgenstein, 1953; Kripke, 1982; Daston, 2022). In a never-ending dance, workers slyly reinterpret the rules that capitalists formulate; capitalists then angrily reinterpret the reinterpretations. Worse, this unlimited potential for defiance is unavoidably tied to precisely the decision-making abilities that capital requires from its workers.

From capital's perspective, one virtue of industrial and digital automation is that it seems to offer a way of coping with this dilemma. In the capitalist imaginary, machines ought to be able to constrain workers into making more of the choices that capital wants them to make while excluding others. With their relentlessly uniform motions and operations, networks of industrial or digital machines – powered by a commensurated, monolithic global "energy" with its ever-expanding global infrastructure (Lohmann, 2021; Lohmann and Hildyard, 2014) – hold out the promise of encoding capital's rules in a way that might make them almost unreinterpretable by the masses. The recurring fantasy is that eventually the messy, recalcitrant human interpretive work that "mediates between rules and the unruly world could be kicked away like the scaffolding from a completed building" (Daston, 2022: 273). Mechanical or electro-mechanical devices properly constructed and programmed by capital ought to be able to run themselves as well as running workers and citizens. The dream of total mechanization and the dream of rules without interpreters are one.

The perpetual failure of these twinned dreams doesn't need to be reiterated here (Caffentzis, 2013). Far from removing the old contradiction between labor and capital, attempts to realize them merely give it "more room to move" (Marx, 1867: 198). Industrial and digital machines may well be able to recruit, regiment and degrade the lives of larger and larger numbers of workers worldwide (Huber, 2009; Ortega, 2014), but they are not going to replace them anytime soon. Marx's way of putting this was to say that capitalist production needs to have more and more "living labor" on hand to articulate with the growing "dead labor" of machine action. Amid the 20th-century expansion of archipelagos of mechanized "islands of stability, uniformity, and predictability" (Daston, 2022: 19, 273) surrounded by a deepening ocean of high-entropy degradation and chaos (Rovelli, 2018: 159-166; Lohmann, 2021; Hornborg, this volume), Wittgenstein updated this vocabulary by stressing that "even the most apparently straightforward, unambiguous rules – algorithmic rules such as how to continue a numerical series" (Daston, 2022: 272) – required human interpretive labor capacities rooted in very slow-developing biological abilities and social customs and institutions in order to function (see also Sheets-Johnstone, 2011). If factory machines needed living humans in order to be able to produce capitalist value, so too did any collection of rules or algorithms marshalled by experts to exercise control over that very labor. Thus artificial intelligence (AI) is useful to capital today not because it *replaces* human decision labor but because, like 19th-century power looms, it isolates, automates and accelerates the pairing of certain observed past behaviors with one another. If – and only if – rounded out by the proper complement of living human work, this can extend capitalist discipline and increase "productivity" on those "islands" of repeatability. As an integral part of the same process, it also strews more and more disorder, entropy and waste in surrounding "oceans" where they cannot become a cost to capital (Hornborg, this volume; Kapp, 1950; Spash, 2021).

A similar point holds, this chapter argues, for cost-benefit analysis. Like digital and other industrial machines, CBA seeks, in a manner of speaking, to automate human decision work – not so much that of factory workers as that of bureaucrats, the political classes, and the general public. Like such machines, it throws up the appearance of being able to replace the living labor of choice-making, but in fact does something quite different. Just as classic industrial mechanization functions to

discipline, disempower, control and extract the maximum value from labor, CBA's attempted automation of political decision-making processes is directed at regimenting, smoothing out and disempowering the restive modern public to make it more productive for capital accumulation. The results are contradictory in much the same way that classic capitalist mechanization is.

The remainder of this chapter tries to put some flesh on this skeleton argument as follows. The next section attempts to bring the debate over CBA down to earth by presenting real-life examples of decision work under capitalism, including policy work. The following section spells out why this complexly-structured living labor cannot be replaced, for capital's purposes, by machines or machine-like processes involving CBA, or even satisfactorily represented by them. The chapter concludes by sketching a more realistic picture of what CBA actually does in contemporary capitalism, together with the inevitable contradictions it engenders, the ongoing dialectic that results, and some lessons for popular movements.

The Work of Choice

How are decisions actually made by workers? What does the labor of decision consist of in factories; among the precariat; in the extraction, services and circulation sectors; in bureaucracies and in politics? Here are some concrete examples:

- Working on the production line, should I try to restart this rattling machine myself or lose time waiting for the mechanic to take a look first lest I disable it permanently? That depends on how expensive the machine is, what I think is wrong with it, how urgent it is to restart it, whether I trust the information I have about cost and urgency, how much I trust my own mechanical knowledge, how important it is to keep my job yet simultaneously to demonstrate my skills or initiative to management, what my relations with my supervisor are like, whether my possible failure with this machine would anger colleagues or impel management to leave even less to my discretion in the future, and so on.

- As a motorcycle driver for the mobility platform Gojek, should I accept a job to deliver food to a huge mall in Jakarta? That depends on whether the drop-off point is in a zone where we online platform drivers have agreed not to compete with conventional motorbike taxis, and, if it is, how happy the customer is likely to be about having to pick up the order 500 feet away. Also, will I have to traverse a neighborhood where political demonstrations have closed off streets? Will construction in the area block GPS signals, yielding inaccurate geolocations? My personal relationships with local private security personnel also come into play, as well as the state of potholes in the zone, the length that local traffic signals tend to stay red, and my current bank balance (Qadri, 2023).

- As a slave diving for pearls in the Arabian Gulf of the early 20th century, when should I stop slicing and collecting oysters off the sea floor and pull on the rope around my waist to signal to my hauler in the boat above to pull me up? That depends on my understanding of the hauler's trustworthiness, my relations with him, my knowledge of my own current health, the depth of my dive, the magnitude of the swells that the hauler must take into account in retrieving me, my performance on previous days of the season, and my prediction of the reaction of the boat captain to my performance today and in the past (Hopper, 2015: 82-85).

- Which kind of cotton should I use to spin thread for my homemade fabric business? I might have to think about many things: cost, indebtedness, profit margins, strength, texture, compatibility with certain dyes, reactions of customers to the resulting products, future changes in customer profiles, the satisfaction I take in working with this or that raw material, the effect of different cotton varieties on my land, and other factors.

- In my coffee shop, should I try to stay on the good side of my tiresomely temperamental colleague at the cash register or is it just not worth the effort? That might depend on how badly their behaviour is affecting my own work, whether they might leave the firm soon, how irrevocable my decision would be should I start blanking them, and how that decision might look to other colleagues. And when is it actually rational to spend any time at all on such decisions, as opposed to acting immediately on the basis of, say, trusted procedural precedents or "animal spirits"?

- When I am composing music for an advertising spot, should I choose a theme that drops a minor third here or a perfect fourth there? Why or why not, given what I know about the musical tastes of potential customers? Which networks of metaphors should I then rely on to convince the players in my musical group to phrase the theme as, for example, "spiky" rather than "flowing" (Isenberg, 1949).

- After transferring my trade goods to a canoe to transport them through whitewater rapids to a market downstream, what position in the stream should I start from? That depends on where I will want the canoe to be situated later, so that I can call into play inculcated bodily reflexes or habits that will then make the right further choices "for" me (Suchman, 2006: 18-20, 72). It also depends on what reasons I have to trust those habits in these circumstances.

- As a government official, when should I decide to abandon policies that rely on predictive algorithms to assess creditworthiness, measure the likelihood that an individual will commit a crime, evaluate visa applications or gauge the potential of students? (Amoore, 2020). Will that be when a certain number of thousands of oppressed inner-city residents or secondary-school students take to the streets chanting "Fuck the algorithm!"? Or when consultants are unable to explain under duress how their models make predictions? Which reasons do I give in which circumstances for my policy reversal?

- As a bureaucrat laboring to coordinate, direct and regulate production, circulation and reproduction in a complex industrial society, how do I help justify my bosses' decision to re-regulate an industry to hamper employee bargaining and safeguard future profits? What reasons should I appeal to in order to persuade the public that alternatives have been considered and that the choice has been determined by a comprehensive, discretion-free technique for democratically weighing all societal costs and benefits against one another? To what extent should I try to anticipate how the public will react, or what further reasons I should give? How seriously should I take the possibility of future lawsuits? When should I simply set aside all those pages of CBA that my staff has put before me, and when should I quote them or behave as if I take them seriously?

Spaces of Reasons

What does this tiny collection of everyday examples tell us about the living labor of decision on which capital accumulation depends?

The main lesson is one routinely ignored in academic discussions, particularly in the orthodox economics of the 20th and 21st centuries, and particularly in the literature supporting and elucidating CBA. This is that all of the (good and bad) decision-making processes canvassed above are *rational*. By that I mean that they are embedded, constituted and conducted in complex social spaces consisting of diverse, changing, slowly-acquired practices of reason-giving carried out in contexts in which human beings have to rub along together in wildly varying situations without resort to crippling types and degrees of violence. All the workers mentioned above, when asked, have to be able to give recognizable reasons to others for their decisions in contexts in which some of their material interactions with other humans and nonhumans are open to public view (Davidson, 2001, 2004; Shanker, 1998), and to argue about those reasons.

Second, these reasons are not homogeneous. Many of the reasons for the decisions mentioned above are beliefs – about objects, about what other people think, about oneself and one's abilities, about the future. Other reasons take the form of desires, hints, metaphors, narrative contexts and so on. All of these have different origins in human evolution, but are essential at various times to the ability of labor to "go on" (Wittgenstein, 1953) in ever-changing circumstances in the reasoned and creative ways required for capital accumulation.

Third, surrounding and constituting each of these reasons is a vast, acquired, yet constantly-changing infrastructure of *other* beliefs, desires, narrative elements, potentials for further hints and metaphors, and so on. As the Wittgensteinian tradition has emphasized, it is impossible to hold just one belief or desire (Davidson 2001, 2004). Each belief, for example, is defined by being connected to countless others through relations of inference inculcated over long years of social experience of a diverse and often unpredictable human and nonhuman world. Capital's workers have to be prepared to countenance and argue over not only criticisms of their justifications for one decision, but also about diverse millions of other reasons that form part of the same discursive universe. Living labor power is exercised in what the philosopher Wilfrid Sellars (2007, 1997 [1956]) called a "space of reasons" – or, in terms explored long ago by Georg Lukacs (1980: 38), a "space for decision" defined by an intrinsically social "complex of being" (see also Castoriadis 1974).

As recent experience with artificial intelligence has clarified, this space, or network, is exceedingly large and diverse, and would consume centuries and untold amounts of energy and water to try to replicate with machines. Recent remarks by Rodney Brooks, a legendary MIT roboticist, go straight to the point. When a human identifies a photo as that of people playing Frisbee in a park, Brooks notes,

"you would assume you could ask him a question, like, 'Can you eat a Frisbee?' And they would know, of course not; it's made of plastic. … [T]hey would know the answer to the question, 'Can you play Frisbee in a snowstorm? Or, how far can a person throw a Frisbee? Can they throw it 10 miles? Can they only throw it 10 centimeters?' You'd expect all that competence from that one piece of performance" (Brooks, 2023).

The history behind this capacity, Brooks implies, is too long and multilayered to be duplicated by building machines using big data, fast, energy-hungry processors, algorithms and statistics to do nothing more than make virtuoso predictions of the binary matches that humans might make between a particular word and a particular thing, or between an image and a phrase, or between one sentence and another. Thus today's advanced image-labelling systems:

"… cannot answer questions at all, they have no idea what a person is, that parks are usually outside, that people have ages, that weather is anything more than how it makes a photo look, etc., etc." (Brooks, 2017).

As Wittgenstein himself observed almost a century ago, machines cannot by themselves perform even relatively "simple" rational acts like adding, subtracting and multiplying (Shanker, 1998; Collins, 1990). Because machine "decisions" are not (yet) carried out in evolved spaces of reasons, they are not even (yet) decisions. What Brooks calls the broad, plural human "competence" that capital needs from its workers – from the lowliest Amazon warehouse "associate" to the oil company boardroom exec – cannot be made more rational or more useful to capital by trying to remove it from the contingent mess comprising various long-evolved socionatural spaces of reasons. Quite the reverse. As Hamid Ekbia and Bonnie Nardi (2017) argue, what has traditionally been termed "automation" should really be called "heteromation" in acknowledgement of this unbreakable living labor/dead labor conjunction (see also Gray and Suri, 2019).

Fourth, running through all these labor processes is reasoning about ends. There is probably no situation in the above examples in which my decision about what to do cannot be affected by a need to redescribe, elaborate, re-evaluate and revise creatively in midstream what I am trying to achieve, in accordance with what John Dewey (2008 [1939]) once called the "ends-means continuum," the constant need to give added direction to current action via collective innovation, and new knowledge about the prerequisites and hitherto unforeseen consequences of current action (see also Richardson, 2000; Anderson, 1997, 2023; Gould and Vrba, 1982; Schlaudt, 2022). For example, if a hydroelectric dam that my bosses need to build is revealed to be irredeemably uneconomic, then I will need to change how I describe its purpose. In addition to power production, the objectives may now include irrigation, flood control, scenic beauty, tourist income, new jobs, reservoir fisheries and the like. Similarly, as a commercial composer, I may remain undecided about which motif to use for my jingle until I hit upon one that immediately strikes me as right for what I only now realize is the target audience I want to create. To make their way in capitalist society, workers need to be able to switch on short notice from a more or less instrumental frame of mind, in which they focus on effective means to a provisional goal, to one in which they concentrate instead for a time on the "intelligent refashioning" (Richardson, 2000: 989) or deliberative respecification (Wiggins, 2002 [1987]: 225) of those goals. They also need to be sensitive to the incommensurability of the changing yet complementary ends that characterize real-life working communities and households (Heinzerling, 2021; Gudeman, 2016; Burgess, Clark and Harrison, 1995; Espeland, 1998; O'Neill, 1993, 2017; Nussbaum, 2000). For workers to be able continually to acquire fresh reasons for doing and changing what they do and to understand that different choices may need to be evaluated according to different nets of criteria is one sign that they know their jobs.

Fifth, the "spaces of reasons" – and the ability to be correct or mistaken – that define living labor power are material through and through, rooted in the human and more-than-human commons that form the "constitutive outside" of capital. Capital's profits from the exploitation of human labor amount to a "subsidy from nature" (and the state) as material as any other. One way to demonstrate this is to examine the defining first leap in small children's learning to make rational decisions, and thus eventually to become workers. That first leap is not to learn to give good reasons for an action but to learn to give any reasons at all. As a three-year-old, I might decide to pour water into my mother's shoes. I quickly learn that unpleasant consequences that might otherwise flow from such decisions can often be avoided by trying to explain or give reasons for them. At first any reasons will do. "The cat told me to do it," I claim. Or: "It was a *accident*!" I come to understand that almost any gambit essaying such connections between my action and a wider, human-permeated world is likely to favor relatively peaceful, possibly fun engagements over reprimands or slaps. Almost any gambit will work far better than silence in improving my ability to find the reasons I will ultimately want to give for my actions as well as my place in the world. Simultaneously, I learn to avoid actions for which I will not be able to give approved reasons. Through play, I become a being more and more of whose actions are definable by encircling webs of recognizable reasons. Whatever happens in the rest of my lifetime intellectual development may well turn out to be interesting and important, but will always be derivative of this moment. If I eventually also learn to do quantum physics, plant maize correctly, interpret Mozart, or build AIs, that will amount, at most, to a microscopically thin layer on top of the more fundamental, massive, long-evolved achievement of ordinary worldly human linguistic and other activity.

Two related characteristics of childrens' relations with their environments that carry over into mature decision-making are of special importance here. The first is that, as mentioned earlier, languages must be learned in public among communities of both humans and non-humans. Decision-making labor, like all labor, is embedded in the earth. Second, the heterogeneity of spaces of reasons that has been emphasized above is just what would be expected for beings that have had

to evolve together with a bewildering patchwork of material challenges – a "dappled world" (Cartwright, 1999) – in which varying, partly conflicting, yet often complementary types of justifications for action have to be given at different times. The bricolaged competences associated with living labor are fed from diverse sources in biological and social evolution and reproduction, reflecting divergent temporalities, whether evolutionary, species, childhood, cultural, bodily, biochemical, or conversational. While concrete human activities must be framed as abstract labor in order to produce capitalist value, at no point in the process can this living history – nor the diversity of these temporalities – be erased. Rather, it must always be present as one pole of a "contradictory unity" (Harvey, 2015) or "struggling entity" (Martineau, 2015). For example, one reason that job interviews are useful is that employers are entitled to infer that if applicants can perform one task, they will also be able to handle many others that may be completely unrelated. With artificial intelligence machines, this inference is generally unwarranted.

CBA in Spaces of Reasons

Cost-benefit analysis is inserted into socionatural spaces of reasons much as industrial machines are, in similar ways and for similar purposes, and in ways that produce similar contradictions. CBA arrives in society not as a small, self-contained, plug-and-play module for streamlining and improving public choice while leaving everything else untouched. Rather, like a successful industrial machine, it lives and dies through enforced material and political connections to distant locations. It demands that the world upend itself in order to supply particular sorts of simplified inputs and the means of extracting or producing them. It requires new infrastructure to transport those inputs to itself. And it needs that its environment be rejiggered still further in order to accommodate the novel outputs that it produces. This comprehensive backward and forward socionatural re-engineering, like that required by industrial machines, is inherently undemocratic, violent and ecologically destructive.

As with industrial machines, much of this violence paradoxically undermines the very same capacities of living labor described above – the same rationality – that capital cannot do without. CBA is not (as it is sometimes presented) a commonsense component of good housekeeping that confines itself to collecting information about and taking into careful account, as one set of reasons among many, the possible costs and benefits of various choices and comparing them with those associated with other possible courses of action. If that is all CBA were, it would not ignite the profound political conflict that has always surrounded it. Instead, CBA purports to set up a "general standard" for public decision-making (Richardson, 2000) – a mechanical routine that, "once set in motion by appropriate value judgments on the part of those politically responsible and accountable," is supposed smoothly to "run its course without further interference from the top" (Sen, Das Gupta, and Marglin, 1972, cited in Porter, 1995: 150). It is designed to automate the work of public choice, make it more "ruly" (Daston, 2022: 273) and in particular to remove from it the messy, dilatory species of living labor occasionally called "discretion." To do so, it is forced to try to replace much of the complex living labor of reason-giving described in the concrete examples above with simplified price comparisons, which, it implies, can be conducted mechanically with a minimum of troublesome resistance. That is, it aspires to replace those Sellarsian (2007) "spaces of reasons" with quasi-markets that, according to a venerable 20th-century fantasy of orthodox economics, can be modeled as machines (Mirowski, 2001). Just as Industrial Revolution factory machines were used to reorganize physical fragments of meaningful, reason-permeated activities like weaving or automaking and energize them on such a huge and intimidating scale that they came to be identified with production itself, so too CBA isolates a tiny piece of the reason-permeated activity of decision-making – comparison of the monetary costs and benefits of actions – and expands and mechanizes its application in such a way that it takes on the aura of being capable of

taking over the whole burden of reasoned decision-making from a flawed and limited humanity. In so doing, it embraces and augments all the mystifications of "equal exchange" embodied in money and contract that have been touched on above (Hornborg, this volume), glossing over the realities of appropriation, exploitation and entropy flows and frontiers and provoking repeated crises of degradation.

"Upstream" of the CBA machine, then, the choices made by the isolated individuals that CBA takes to be constitutive of society must be reformatted as economic "preferences," or welfare-commensurated-with-money, if they are to serve as inputs into the device. Only via this unprecedented, relatively ungrounded expansion of pricing practices can winners' gains and losers' losses be commensurated at the machine's location in order to make plausible a "hypothetical costless lump-sum redistribution from winners to losers" in the world of a proposed policy or project, so that everybody would rate that world as equally or more desirable than the status quo (Adler and Posner, 2001: 270-273). Only by ignoring most of the living, reason-giving labor process that individuals employ when arriving at opinions on a proposed policy or project can CBA construe those opinions as quantities of money that can then be aggregated with one another. Only by taking a broken, primitive fragment of the space of reasons in which people operate, isolating it and attempting to reproduce it again and again, can the CBA machine do its job. Only by doing violence to the reasoned processes through which people formulate and reformulate choices in real life can the procedure fulfil its bogus conception of democracy by giving what it unilaterally reinterprets as their "choices" equal weight.

For example, the CBA machine can accept as raw materials only those individual "choices" that are *not* understood to be dependent on a continuing process of conversation and collective deliberation (Sen, 1977, 2001; Richardson, 2000). Rather than being tentative or open to correction, the individual preferences mined by CBA must be construed as final, excluding the possibility of future information that the individuals themselves might consider relevant and before any collective decision has been made about what sort of information will count as relevant. These preferences must be treated as constitutionally immune to revisions that their holders might want to make once they see the outcome of the policy or project being evaulated (Adler and Posner, 2001: 278, 284–285).

In addition, the raw materials to be fed into the CBA machine must consist of numbers. They cannot be choices constituted by the context of the variegated (non-numerical) nets of reasons given for them, but must be, so to speak, primitive experiences of price differences. That is, the preferences on which CBA operates can at best be only tiny fragments broken off the real-life decisions on which they are based. They are *required* to lack the rationality of those decisions – that is to say, their embeddedness in larger spaces of reasons. Just as the power loom can know nothing of the cloth that it weaves – its nature or purposes, why it is important, how it feels – so too the CBA machine can know nothing of the nets of reasons that support balanced decision-making. Thus it is not merely that CBA cannot take into consideration the kind of practical reasoning engaged in collectively by communities who do not share common adjudication procedures when looking at the same set of alternatives. It cannot take into consideration, represent, or replace *any* types of practical reasoning, including those laid out in the nine examples above (Adler and Posner, 2001, pp. 276–277, 290–291).

These imperatives are embodied in the very procedures used for extracting raw materials for processing and transport to the CBA machine. The economic technique of *hedonic pricing*, for example, uses statistical techniques to mine people's "preferences" from observable market behavior. For example, preferences for workplace safety might be inferred by comparing wage

levels of various jobs with their work-related injury rates. At no point is the nature of these preferences allowed to be influenced by the reasons subjects might give for them. The technique of *contingent valuation*, by contrast, does involve direct physical contact with the public from whom preferences are to be extracted. But this contact takes place only in interview rooms or on questionnaire sheets. One by one, subjects are asked how much money they would accept to compensate for losses suffered as a result of a proposed policy or project, or how much they would pay to defend some aspect of the status quo against it. Here preferences are extracted and processed into a machine-friendly form in several steps. First, any refusals by subjects to cite monetary figures are either suppressed or converted into processable numbers more or less arbitrarily chosen by the preference miners (Clark, Burgess, and Harrison, 2000). Second, any hints of tentativeness, uncertainty, frustration, gaming or resistance impelled by CBA's methodological disregard for the reasons that might be given for a decision are removed. Commensuration becomes a "system for discarding information and organizing what remains into new forms" (Espeland and Stevens, 1998: 317), and thus for disempowering and disciplining members of the public attempting to use their powers of reasoning. Popular opposition is often met by CBA specialists' insisting that they are only passively "reading off" the decisions that their objects of study have already independently made (e.g., Fankhauser, 1995: 167). But this tactic typically only kindles further class struggle, partly because it formats the public as stupid and economists deploying CBA as arrogant.

Downstream from the CBA machine, meanwhile, where the numbers it produces are consumed, a complementary dynamic takes hold. Figures greater than unity (say, 1.09) are supposed to be mapped directly onto implementation of the proposed policy or project, while figures less than one (say, 0. 65) are supposed to preclude it. When presented as fixed "facts" by experts or politicians, such numbers can harden elite support for the initiative in question. That undermines any possibility for starting up the CBA machine again with new raw material that might yield a different result. This dynamic, obviously, is more likely to stoke further popular resistance than to eliminate it.

Both upstream and downstream, the mechanization of decision-making essayed by CBA is "deskilling" in something like the sense used in Harry Braverman's (1974) classic work on automation. It impoverishes the intelligence of many officials and experts as well as ordinary people. Its imposed "interpretation of what the public wants" is *designed* to be incorrect and necessarily presents a false picture even of the general project that it is advertised to advance, namely the "wise use of limited resources and of careful instrumental reasoning in pursuit of one's projects" (Richardson, 2000: 973). It is constructed to obscure and sideline the earthly forums in which reason is actually cultivated and exercised, feigning to replace them with fanciful automated techniques for extracting and processing individual subjectivities operated by economists and their patrons. Like the audit procedures described by Michael Power (1999), CBA brings about a "loss of social thinking," that is to say thinking *tout court*. There is, of course, a logic to this. It would be easier to push the frontiers of capitalist plunder outward and inward if the process could somehow be placed outside class struggle and class reasoning. The problem is that it cannot. A "utopia of bosses" able to "drive out everything that does not fit" their own particular interpretations of their rules would ultimately prove "asphyxiating" (Alkhatib, 2021) not only for labor, but ultimately also for capital itself.

For two centuries, the unachievable vision of an asymptotic approach toward a point at which capital might be accumulated without the living work of of human communities in rule interpretation and decision-making has shimmered in the background of industrial mechanization as well as of statistics research, digital computing, opinion polling, game theory, organization theory, artificial intelligence, and more. This chapter has had no space to begin exploring the interconnectedness of all these movements. But in indicating some of the affinities between cost-

benefit analysis and industrial mechanization, it hopes to have made a start toward a more integrated understanding of capitalist rule and capitalist vulnerabilities that may be of use to the social movements of the future.

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