

ALGORITHMIC CENTRAL PLANNING: BETWEEN EFFICIENCY AND FREEDOM

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I

INTRODUCTION

In 1945, when the Soviet Union was emerging victorious from the Second World War, and communism and planned economies would soon become the reality for millions of people in Eastern Europe, F. A. Hayek wrote his seminal *The Use of Knowledge in Society*, which began:

What is the problem we wish to solve when we try to construct a rational economic order?

On certain familiar assumptions the answer is simple enough. *If* we possess all the relevant information, *if* we can start out from a given system of preferences, and *if* we command complete knowledge of available means, the problem which remains is purely one of logic. . . .

This, however, is emphatically *not* the economic problem which society faces. . . . The reason for this is that the “data” from which the economic calculus starts are never for the whole society “given” to a single mind which could work out the implications, and can never be so given.¹

I contest F. A. Hayek’s assertion that the conditions for an efficient planned economy can *never* materialize. On the contrary, I argue that the validity of his claim is contingent upon the state of technology in a given society and the types of socio-technological practices that people engage in. Advances in data processing technologies might render an economic order based on central planning possible to realize and potentially more efficient than a market economy relying on private property and contract exchange. In this Article, I analyze the theoretical preconditions of an efficient centrally planned economy

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1. See F. A. Hayek, *The Use of Knowledge in Society*, 35 AM. ECON. REV. 519, 519 (1945) (emphasis in original).

and demonstrate that the theory and practice of contemporary information technology suggest that we might soon be able to meet them. As a result, the argument goes, economic planning—as opposed to a market paradigm—might be worth putting back on the table by progressive economists.

Consequently, we might soon face a choice between efficiency, welfare, and convenience on the one hand, and freedom and autonomy on the other. In other words, we will need to confront the question: do we prefer the liberal world of contract, property, and market exchange over a world of command and control because we believe it is more efficient, or because we think it is morally superior? As of today, “both” is a perfectly good answer. It just so happens that societies that embraced the market paradigm, particularly a highly regulated market with significant wealth redistribution, simultaneously enjoy higher levels of welfare and higher levels of individual autonomy.² When, however, planning becomes more efficient (or, put differently, less inefficient) than markets, we will have to choose. A Chicago-style economic analysis of law that asks “what are the efficient rules of property and contract?” might soon lead us to answer: “none whatsoever.”

If we do not confront this question, and continue to insist that individual freedom and economic efficiency necessarily go hand in hand, we may move from a market economy to an algorithmically planned economy without making a conscious decision to do so. Not overnight, maybe not even within one generation, but tacitly, step-by-step, the transition will occur. Almost by accident, one could say. Putting forth a general claim about human “nature,”³ I hypothesize that a sufficiently large number of individuals could happily give up some freedom in exchange for more welfare and more convenience. In this sense, planning will lead us to some form of authoritarianism, where an entity external to the individual will be telling her what to do and what to consume. However, unlike with the twentieth century’s socialist states, authoritarianism will emerge not because the planning will *fail*, but because it will *succeed* in delivering more efficient outcomes than markets. Individuals will not be stripped of political and economic freedom; they will voluntarily give it up.⁴

Before analyzing the normative questions posed by an algorithmically planned economy, I use Part II to outline the history of the idea and practice of central planning and articulate the conceptual differences between a heavily

2. We might, and probably should, be unhappy about dozens of social, economic, and political conditions in the United States and the European Union; but we still prefer those societies over what is happening in Cuba, China, or North Korea.

3. I take “nature” to mean “the way humans happen to be,” without making strong claims on whether those conditions and qualities are necessary in some metaphysical sense, or contingent on “nurture” but so pervasive that they cannot be ignored.

4. This is not, by any means, the only possible future. I am not sure if this is even the most likely future. Arguably, this is a possible future which is morally superior to many other alternatives: in the end, if we cannot be free, we might at least implement an economic system that satisfies our basic needs. Nevertheless, philosophically speaking, this is the most interesting possible future to consider, because it puts new normative questions on the table.

regulated market economy and a centrally planned economy. Part III then describes the historical objections to a centrally planned economy and explains how technological advances might allow its proponents to overcome their critics' longstanding objections. Part IV is a thought experiment: I describe a hypothetical day in an algorithmically planned life. I use this hypothetical to discuss how we might have to normatively decide whether freedom from want is preferable to the freedom of economic choice or vice versa. In Part V, I consider the role of law in facilitating this change of socioeconomic systems. Ultimately, I conclude that the shift to a centrally planned economy will occur only if the law allows it to do so, but law alone is insufficient to prevent the change. By "allows" I do not mean "not prohibiting" in some public sense, but rather creating institutional frameworks that incentivize socio-technological moves in the direction of central planning. The current legal foundations of the market economy, including almost unlimited freedom to use personal information and directly market goods and services in micro-targeted way, paired with the value of efficiency as the guiding principle for many private lawyers, has set us on a path that might soon render contract and property law obsolete. And, if we believe these changes are normatively undesirable, we should react by putting certain legal constraints in place, or by changing the incentives. More profoundly, however, we should engage in broader cultural and philosophical debates about the relationship between efficiency and convenience on the one hand, and freedom or autonomy on the other.

Before putting forward the arguments for these claims, let me clarify some concepts I have been, until now, using quite loosely. And let me do so by looking at the history of the idea of the centrally planned economy.

II

THE IDEA AND THE HISTORY OF LIVING IT

A. An Alien Paradigm

The twentieth century witnessed a heated debate between proponents and opponents of the idea of a centrally planned economy. This idea was considered a viable alternative to a market-based economy by many intellectuals, including those openly calling themselves socialists,⁵ as well as the critics of the "naturalistic" approach to the market.⁶ The socialist critique of the market economy could be, roughly, equated with socialism's critique of capitalism: a system that alienates workers from their labor and promotes the exploitation of

5. See Oskar Lange, *The Computer and the Market*, in SOCIALISM, CAPITALISM, AND ECONOMIC GROWTH 158 (C.H. Feinstein ed., 1967) [hereinafter *The Computer and the Market*]; Oskar Lange, *On the Economic Theory of Socialism: Part One*, 4 REV. ECON. STUD. 53, 66–68 (1936) [hereinafter *Economic Theory of Socialism*].

6. See, e.g., KARL POLANYI, *THE GREAT TRANSFORMATION* (1944).

masses by the owners of the capital is socially undesirable.⁷ Therefore, it should be replaced by a more equitable economic order.

What would a planned economic order look like? In a socialist, centrally planned economy, private ownership of means of production would be abolished, alongside the institution of money.⁸ Instead of producing “for-profit,” the state would manage overall production “for-use.” A central planner would decide what should be produced and by whom, in what quantity, and how to distribute it. Individuals, instead of competing with one another and acting upon their greed, would work together towards a common goal, and be appropriately rewarded upon the plan’s completion.

Another objection to the market-based economy, and a non-socialist voice supporting planning, was offered by Karl Polanyi in *The Great Transformation*.⁹ Polanyi argued that, contrary to common belief, markets are not natural and have in fact been artificially constructed through the state’s legal action by the creation of “fictitious commodities”: land, labor, and money.¹⁰ Polanyi supported this view with historical and ethnographic evidence, effectively claiming that living in a market society runs against human nature.¹¹ According to this view, planning does not need to be “central” for the whole nation-state. Smaller communities can plan their economies and trade only with one another outside of the day-to-day production and consumption by the people.

The socialist and anthropological critique of a liberal market economy was based on an accurate diagnosis of the problems caused by laissez-faire capitalism and rapid industrialization of the nineteenth and early twentieth centuries. The exploitation of workers, poor working and living conditions of the masses, as well as the feeling of social inadequacy of farmers turned into factory workers overnight, were real challenges.¹² These problems prompted reactions on the intellectual level, most notably that of Marx¹³ and Engels,¹⁴ the societal level, through labor movements and several political revolutions, and the political-legal level, with the social turn.¹⁵ However, the responses to these challenges could

7. See generally LESZEK KOLAKOWSKI, MAIN CURRENTS OF MARXISM: THE FOUNDERS, THE GOLDEN AGE, THE BREAKDOWN 230–43 (P. S. Falla trans., W.W. Norton & Co. 2005) (1978).

8. The abolition of money was not always articulated directly by the socialist economists, but seems to be presupposed in their writing. Moreover, the critics of the idea of central planning were directly attacking this point. For an example of such criticism, see LUDWIG VON MISES, SOCIALISM: AN ECONOMIC AND SOCIOLOGICAL ANALYSIS 113–22 (J. Kahane trans., 1951).

9. See generally POLANYI, *supra* note 6.

10. See *id.* at 71–81.

11. See *id.* at 136–40.

12. See, e.g., Carol Boyd Leon, *The Life of American Workers in 1915*, MONTHLY LAB. REV. (Feb. 2016), <https://www.bls.gov/opub/mlr/2016/article/the-life-of-american-workers-in-1915.htm> [https://perma.cc/N98U-S2NX].

13. See generally KARL MARX, CAPITAL: A CRITIQUE OF POLITICAL ECONOMY (Frederick Engels ed., Samuel Moore & Edward Aveling trans., Charles H. Kerr & Co. 1906) (1867).

14. See generally FRIEDRICH ENGELS, SOCIALISM: UTOPIAN AND SCIENTIFIC (Edward Aveling trans., Charles H. Kerr & Co. 1918) (1880).

15. See Duncan Kennedy, *Three Globalizations of Law and Legal Thought: 1850–2000*, in THE NEW LAW AND ECONOMIC DEVELOPMENT 19 (David M. Trubek & Alvaro Santos eds., 2006).

have taken shape either by rejecting the market-based economy and instead embracing central planning, or by regulating the market, which still would remain the core of the economic order.

In the West, the second strand prevailed. In Europe, social democracy, largely influenced by the ordoliberal thinkers of the Freiburg school,¹⁶ and Christian democracy, influenced by the Catholic social teaching of the popes rejecting both unchecked liberalism and communism,¹⁷ ended up being the intellectual and political underpinning of the post-World War II welfare states. In the United States, this role was played by the ideology of Franklin Delano Roosevelt's New Deal; a progressive assault on laissez-faire economic policy and an attempt to save capitalism by partially taming its excesses.¹⁸ Governments in the West accepted the market as a necessary, often naturally occurring, mode of allocating resources and began treating private property and freedom of contract as obvious institutions. Any corrections to the distribution of resources resulting from this spontaneous order—even significant ones in the form of social security benefits, public healthcare, pensions, or other public services—would be exceptions or additions to the rule of the market. The debates between proponents of state intervention and laissez-faire—that is the debates that we currently see between “the left” and “the right”—took place *within* this paradigm, according to which market exchange is natural and necessary.

In the meantime, east of the Iron Curtain, the Soviet Union and its satellites embraced central planning. The Central Planning Board of the Communist Party would issue a plan (usually every five years) which specified the quantity of production in various sectors of the national economy, from mining to manufacturing to infrastructure construction to agriculture. Then, publicly-owned enterprises were charged with realizing that plan, and workers—who were under an obligation to have an occupation, and who needed the state's permission to change occupation—were encouraged to meet, or even exceed, the production norms. Labor stopped being a commodity traded on the market; freedom to start one's own enterprise was abolished, and the ownership of the vast majority of means of production was concentrated in the quite visible hand of the state. Even in these centrally planned economies, the states retained money as both a store of value and a medium of exchange, did not abolish private ownership of chattel, and to a small extent tolerated private ownership of land. However, the ability to acquire goods was not fully determined by the money an individual possessed, but rather by the authoritative allocation of goods in certain

16. See generally Ralf Ptak, *Neoliberalism in Germany: Revisiting the Ordoliberal Foundations of the Social Market Economy*, in *THE ROAD FROM MONT PÈLERIN: THE MAKING OF THE NEOLIBERAL THOUGHT COLLECTIVE 98* (Philip Mirowski & Dieter Plehwe eds., 2009).

17. See MACIEJ ZIEBA, *PAPAL ECONOMICS: THE CATHOLIC CHURCH ON DEMOCRATIC CAPITALISM, FROM RERUM NEVARUM TO CARITAS IN VERITATE* 97–100, 118–21 (2013).

18. See HUBERT H. HUMPHREY, *THE POLITICAL PHILOSOPHY OF THE NEW DEAL* 12 (1970). For a historical account situating the New Deal within a larger global context, see generally KIRAN KLAUS PATEL, *THE NEW DEAL: A GLOBAL HISTORY* (2016).

areas, as reflected in quotas and official coupons. No large-scale private ownership of the means of production, like land or securities, ever emerged.¹⁹

This approach was therefore not a correction of liberalism, but a fundamental rejection of the market. In other words, market elements such as private ownership and contracting were corrections of planning, not the other way around. The socialist countries of Eastern Europe embraced a different paradigm of economic order—an economy based on a political plan—that is so alien to us nowadays.

B. Regulation and Redistribution versus Planned Economy

A terminological clarification might be in order now. There is a significant difference between state intervention in the market and state abolition of the market.²⁰ It is possible to have a heavily regulated, heavily taxed economic order, where large-scale redistribution takes place and numerous social services are provided, that is still a liberal market economy. This paradigm is not a planned economy.

A planned economy is an economy where activities of individuals result not from their decision to engage in them, but directly from the command of a legitimate entity, such as the government. In such a system, individuals engaging in production and consumption do so in response to legitimate normative orders or instructions. Regulation, within the market paradigm, sets the rules of the game for choosing and bargaining. Redistribution, within the market paradigm, equalizes the opportunities available to players, or corrects the outcomes of the game. Planning gets rid of the game entirely.

Another way to explain the difference is to refer to Ronald Coase's distinction between markets and hierarchies.²¹ In *The Nature of the Firm*, Coase theorized two types of economic organization: the price mechanism, and direct control of a superior over the worker.²² His question was: what explains the choice to create firms as opposed to doing everything through markets, or outsourcing certain activities from a firm to the market?²³ His Nobel-Prize-winning answer was simple: transaction costs.²⁴ If it is cheaper and more efficient to plan, we create a firm. If it is cheaper to contract, we deploy markets.

A worker within a firm, instructed by a manager to do something, does not bargain with her—he follows. Different divisions of the same firm do not

19. Stock exchanges literally did not exist, and there was no legal or economic tool for acquiring shares in any economic entities.

20. See F. A. Hayek, *The Road to Serfdom*, READER'S DIG., 45–46 (Apr. 1945) (“It is important not to confuse opposition against . . . planning with a dogmatic laissez faire attitude The successful use of competition does not preclude some types of government interference. For instance, to limit working hours, to require certain sanitary arrangements, to provide an extensive system of social services is fully compatible with the preservation of competition.”).

21. See Ronald H. Coase, *The Nature of the Firm*, 4 *ECONOMICA* 386 (1937).

22. *Id.* at 388.

23. *See id.*

24. *Id.* at 390.

compete against one another—they cooperate. Conceptually then, a planned economy would be just one, enormous firm, where everyone does what the manager of the economy tells them to do.

One might contest these distinctions and point to the fact that for many individuals, past and present, the freedom of choice is illusory. One could argue that many contracts are actually coerced—imposed upon people by social realities. That a worker accepting a low paid, dehumanizing job in an Amazon warehouse does not freely accept it. She may be forced to accept it by the need to provide for her family, equally unattractive offers on the job market, or the unfair education system that rendered her less educated than others. All of these objections carry some truth.²⁵

There is a difference, however, between a system that endows an individual with normative freedom to choose her life path without providing the means necessary to exercise that freedom, and a system questioning the very idea that individuals decide their own life paths. The first one is an unfair liberal order. The second is planning.²⁶

C. The Critiques and the Defenses of a Planned Economy

Not many criticized the socialists for identifying that the market economy risked creating and exacerbating inequality and exploitation. Likewise, few criticized the socialists' ideals: prosperity and non-dominance by the capital owners. Criticism has been directed instead towards the means of achieving that goal. Central planning, in particular, has received two lines of criticism: deontological, that is, invoking human dignity and liberty; and consequentialist, that is, concentrating on efficiency and the chance of realizing it. Hayek, in fact, accounted for both:

Liberalism . . . regards competition as superior [to planning] not only because in most circumstances it is the most efficient method known but because *it is the only method which does not require the coercive or arbitrary intervention of authority*. It dispenses with the need for 'conscious social control' and gives individuals a chance to decide whether the prospects of a particular occupation are sufficient to compensate for the disadvantages connected with it.²⁷

In other words, there are two reasons to prefer a market economy over a planned economy: it is morally superior on account of respecting individual

25. This realization led the Legal Realists to criticize the very distinction between private and public law. See Joseph William Singer, *Legal Realism Now*, 76 CAL. L. REV. 465, 482 (1988). This realization also led later generations of post-realist thinkers, most notably the Critical Legal Theory scholars, to assert that the formal equality of persons in contract and tort is just a masking device for structural inequalities, power relations, and hierarchies of subjugation, both created and sustained by the law. See *id.* at 532–40.

26. Unless one subscribes to a hard version of historical materialism, ideas matter at least in some way and to some degree. Authoritatively stated ideas, enshrined by the law, matter in profound ways. And so the world in which a signal “your life is for you to shape” is sent, even if the material conditions do not allow it, is a very different world from the one where a signal “it is up to the planner to decide how to shape your life” is the organizing message.

27. See Hayek, *supra* note 20, at 45–46 (emphasis added).

autonomy and freedom, and it is more efficient, creating a bigger pie and distributing it more fairly.²⁸ For Hayek, it seemed incontestable that both hold *at the same time*. Let us take a closer look at each.

A deontological critique of planning would concentrate on the fact that property is a natural right of every individual²⁹ and depriving her of the private possession of goods and land runs against the fundamental rights of persons.³⁰ Similarly, freedom to choose one's occupation, freedom to contract about one's time and possessions, and freedom to choose one's way of life, are incompatible with the idea of central planning.³¹ Once the planner steps in—the critique would go—individuals are stripped not only of property, but also of choices regarding their preferences about small and large issues in their lives.

A consequentialist critique, on the other hand, would underline the negative consequences of attempting to build a centrally planned economy. The common conviction here has been that the endeavor would be impossible to realize, would be inefficient, and would lead to disastrous effects, including mass poverty and social frustration. The most familiar argument for that claim was offered by Hayek in *The Road to Serfdom*.³² Read together with *The Use of Knowledge in Society*,³³ this critique could be summarized as follows: efficient planning is impossible because it presupposes full knowledge about the availability of goods and means of production, as well as individual preferences. This knowledge is local, distributed in the minds of individuals themselves, often incomplete, constantly changing, and as a result, impossible to aggregate.

Since planning would fail—the argument continues—impoverished and frustrated individuals would start questioning the system. The system, if it wished to preserve power, would need to silence these voices and keep social unrest in check, inevitably leading to some form of authoritarianism. Hence, the deontological and consequentialist critiques come together.

Others highlight that even if central planners could successfully aggregate all necessary data, the algorithm for state-wide distribution would be extremely

28. Which, if efficiency is our meta-normative value, would be also morally superior. Similarly, if we assume that individuals derive value from being autonomous, the former could be treated as economically efficient. The distinction I want to retain is that between deontological value of autonomy (regardless of the economic outcome) and consequentialist value of efficiency (regardless of its potential moral value). For yet another normative take, going beyond the deontological and consequentialist dichotomy and proposing a teleological justification for property as advancing individual autonomy, see HANOCH DAGAN, *A LIBERAL THEORY OF PROPERTY* (forthcoming 2020).

29. See generally JOHN LOCKE, *SECOND TREATISE OF GOVERNMENT* (C.B. Macpherson ed., Hackett 1980) (1690).

30. See, e.g., Universal Declaration of Human Rights, G.A. Res. 217A, U.N. GAOR, 3d Sess., at 71, U.N. Doc. A/810 (1948) (“Everyone has the right to own property alone as well as in association with others.”).

31. See Leo XIII, *Rerum Novarum: Encyclical of Pope Leo XIII on Capital and Labor* (1891), http://www.vatican.va/content/leo-xiii/en/encyclicals/documents/hf_l-xiii_enc_15051891_rerum-novarum.html [https://perma.cc/8R26-XKKD].

32. See Hayek, *supra* note 20, at 49–51.

33. See Hayek, *supra* note 1, at 524–26.

complicated.³⁴ Further, even if we could have such an algorithm, we would not have workforce sufficient to compute it.³⁵ Finally, even if we did, the question of how to get from these results on paper to the actual social ordering remains unanswered.³⁶ As a result, the critique goes, planning is less efficient than markets at best, and impossible to realize at worst.³⁷

These criticisms resulted in theoretical responses from socialist economists. Most famously, Lange proposed to use computers to fulfill these tasks.³⁸ In his view, the problem was not theoretical but practical—the task might be hard, but not impossible.³⁹ Eventually, technological progress would render theoretical possibilities a reality.⁴⁰ Lange acknowledged the moral value of markets in determining how goods and wealth should be distributed. However, since the operation of markets comes with social and individual costs, he believed that we do not really need to live in the market and suffer all the negative consequences—we can just simulate them.⁴¹ In 1936, he suggested the trial and error approach to different ways of conducting central planning,⁴² and thirty years later he argued that, thanks to computing technology, we might receive the benefits of markets without bearing the costs. He wrote:

The market mechanism and trial and error procedure proposed in my essay really played the role of a computing device for solving a system of simultaneous equations.

. . . Such an electronic analogue . . . simulates the working of the market. This statement, however, may be reversed: the market simulates the electronic analogue computer. In other words, the market may be considered as a computer *sui generis* which serves to solve a system of simultaneous equations. . . . The market may be considered as one of the oldest historical devices for solving simultaneous equations.⁴³

Note that, to Lange, individual preferences and choices did matter. There is value in letting people do what they want and rewarding them with what they enjoy for their labor. However, as is clear to us and was clear to Lange, only very few individuals actually enjoy significant freedom in choosing: individuals are limited by resource scarcity, market inefficiency, and inherent market unfairness. Knowing what resources are available, and what individuals' preferences are, might allow us—through trial and error—to *simulate* the market. We could then

34. See Joseph Salerno, *Postscript: Why a Socialist Economy is “Impossible”*, in LUDWIG VON MISES, *ECONOMIC CALCULATION IN THE SOCIALIST COMMONWEALTH* 51 (S. Adler trans., 1990).

35. *Id.* at 52–53.

36. See, e.g., LEIGH PHILLIPS & MICHAL ROZWORSKI, *THE PEOPLE’S REPUBLIC OF WALMART: HOW THE WORLD’S BIGGEST CORPORATIONS ARE LAYING THE FOUNDATION FOR SOCIALISM* 76–99 (2019).

37. See Salerno, *supra* note 34, at 49 (“Ludwig von Mises demonstrates . . . that, under socialist central planning, there are no means of economic calculation and that, therefore, socialist economy itself is ‘impossible’ . . . not just inefficient or less innovative or conducted without benefit of decentralized knowledge, but really and truly and literally impossible.”).

38. See *The Computer and the Market*, *supra* note 5, at 158.

39. *Id.*

40. *Id.* at 159.

41. *Id.* at 160.

42. See *Economic Theory of Socialism*, *supra* note 5, at 66.

43. *The Computer and the Market*, *supra* note 5, at 158–59.

arrive at a more efficient allocation than the market itself, respecting individual preferences to a no lesser degree. Computers would make this possible.

That was the theory.

D. Capitalism Wins, but Things do not Unfold According to the Plan

The debates between market economy supporters and planned economy proponents were not resolved by scholarly philosophical or economic theorizing, but rather by history itself. The market paradigm prevailed. Both those advocating for liberty and those praising efficiency could proclaim themselves victors.

All the attempts to construct centrally planned economies failed. The Soviet Union and the “Second World” of the Eastern bloc bled out. Inefficiency, poverty, and authoritarianism followed all the communist attempts to replace the markets with planning, from Havana to Pyongyang.⁴⁴ At the same time, Western capitalist societies thrived. Not without problems, definitely imperfect, but superior to planned economies regarding wealth, efficiency, creativity, and freedom. As the Eastern bloc crumbled, liberal, capitalist democracy seemed like the best way to go. Welfare states looked like a solution to the problem of social costs of markets. Clearly, there were political decisions to be made regarding the amount of taxation and redistribution. But the paradigm of the market as a tool for organizing the economy, even a highly regulated one, seemed uncontested. Fukuyama published the (in)famous *The End of History?*⁴⁵ Hayek looked like a prophet: the largest economic experiment ever conducted proved his theory was right.

A rapid westernization of the Second World followed—a transition to capitalism and a market economy, and the construction of the institutions necessary for the market’s operation. From Tallinn to Tirana one could see the emergence of central banks, stock exchanges, privatization of public property and companies, and liberalization of the laws governing the economy. On the global level, the world of the 1990s became smaller, the General Agreements on Tariffs and Trade morphed into the World Trade Organization,⁴⁶ trade thrived, Ricardo smiled in his grave,⁴⁷ automation continued. Quite rapidly, economic thinking

44. See, e.g., Matthias Middell, 1989, in *THE OXFORD HANDBOOK OF THE HISTORY OF COMMUNISM* 171 (Stephen A. Smith ed., 2014); Ilya Somin, *Lessons from a Century of Communism*, WASH. POST (Nov. 7, 2017), <https://www.washingtonpost.com/news/volokh-conspiracy/wp/2017/11/07/lessons-from-a-century-of-communism/> [<https://perma.cc/5DYL-R37G>].

45. See Francis Fukuyama, *The End of History?*, 16 NAT’L INT. 3, 4 (1989) (arguing that the end of the Cold War marked the “end point of mankind’s ideological evolution and the universalization of Western liberal democracy as the final form of human government”).

46. See generally S. P. Shukla, *From GATT to WTO and Beyond* (United Nations Univ. World Inst. for Dev. Econ. Research, Working Paper No. 195, 2000), <https://www.wider.unu.edu/sites/default/files/wp195.pdf> [<https://perma.cc/7NDL-RUP6>].

47. See Arnaut Costinot & Dave Donaldson, *Ricardo’s Theory of Comparative Advantage: Old Idea, New Evidence* (Nat’l Bureau of Econ. Research, Working Paper No. 17969, 2012), <https://www.nber.org/papers/w17969.pdf> [<https://perma.cc/X3Y6-MXV6>] (finding that David Ricardo’s nineteenth century theory of competitive advantage, which provides a strong argument in favor of free

converged: one no longer found books on “economics of capitalism” and “economics of socialism,” but simply “economics.” Young economists in the twenty-first century often do not even read Hayek. The field has completely internalized the core of his theory. The debates we have, even the heated ones, all take place within the market economy paradigm.

Nevertheless, in 2020, few share the optimism about the inevitable progress of the economy and political freedom that prevailed thirty years ago. In the West, social inequalities are on the rise,⁴⁸ the glass ceiling seems thick,⁴⁹ and the amount of low-paid jobs is not shrinking, unlike the middle class.⁵⁰ On the political level, reasons for optimism do not abound, either. “Authoritarianism” is a strong word, but we hear it often uttered in and about Trump’s United States, as well as Turkey, Hungary, Poland, and Brazil, and of course Russia.⁵¹ The United Kingdom struggles to leave the European Union.⁵² China serves as proof that political freedom does not necessarily follow economic freedom.⁵³ Amidst weather anomalies caused by climate change and global warming, we try to understand the changes around us, and we desperately try to think of a way of stopping, if not reversing them.

At the same time, we witness significant technological innovations.⁵⁴ The proliferation of personal computers and smart devices connected via wireless networks has led to countless online services. Communication, shopping, banking, dating, reading news, and many other mundane activities are now mediated by technology. The line between being online and offline is getting blurrier.⁵⁵ All this triggers changes in social life and simultaneously documents them.

trade, “is not just mathematically correct and non-trivial; it also has significant explanatory power in the data” on actual output levels).

48. See generally UNITED NATIONS DEP’T OF ECON. & SOC. AFFAIRS, WORLD SOCIAL REPORT 2020: INEQUALITY IN A RAPIDLY CHANGING WORLD (2020), <https://www.un.org/development/desa/dspd/world-social-report/2020-2.html> [<https://perma.cc/ZME3-DQ77>].

49. See DANIEL MARKOVITS, THE MERITOCRACY TRAP: HOW AMERICA’S FOUNDATIONAL MYTH FEEDS INEQUALITY, DISMANTLES THE MIDDLE CLASS, AND DEVOURS THE ELITE 197–232 (2019).

50. See *id.*

51. See Ivan Krastev, *Eastern Europe’s Illiberal Revolution: The Long Road to Democratic Decline*, FOREIGN AFF., May–June 2018, at 39, <https://www.foreignaffairs.com/articles/hungary/2018-04-16/eastern-europes-illiberal-revolution> [<https://perma.cc/7CZ4-7HT4>]. See generally CAN IT HAPPEN HERE? AUTHORITARIANISM IN AMERICA (Cass R. Sunstein ed., 2018).

52. See Benjamin Mueller, *What is Brexit? And What Happens Next?*, N.Y. TIMES (Jan. 31, 2020), <https://www.nytimes.com/interactive/2019/world/europe/what-is-brexit.html> [<https://perma.cc/TL4D-KVBY>].

53. See Mark P. Lagon, *Prosperity Without Democracy? Demystifying the China Model*, FREEDOM HOUSE (July 28, 2015), <https://freedomhouse.org/article/prosperity-without-democracy-demystifying-china-model> [<https://perma.cc/EBK3-8WN9>] (“For more than three decades, the Chinese Communist Party has overseen impressive economic growth and lifted millions out of poverty, while keeping a tight lid on civil society, political freedom, and dissent.”).

54. The word “progress” seems too normatively loaded.

55. See generally Mireille Hildebrandt, *Dualism is Dead. Long Live Plurality (Instead of Duality)*, in THE ONLIFE MANIFESTO: BEING HUMAN IN A HYPERCONNECTED ERA (Luciano Floridi ed., 2015).

Suddenly, almost everything we do leaves a digital footprint. Every move online, and often offline, creates valuable data. The availability of all this data triggers developments in machine learning and other data analytics technologies.⁵⁶ These developments allow us to automate certain tasks traditionally undertaken by humans (for example, translation or spam detection), and in some ways render machines not only much faster, but also more precise, in performing human-experts' jobs (for example, stock trading or cancer prediction). These developments cause excitement on the one hand⁵⁷ and concern on the other.⁵⁸ We ponder regulation of algorithms,⁵⁹ while the extraterritorially applicable regulation of data processing, the General Data Protection Regulation (GDPR), has entered in force in the European Union. Theoretical concepts turn into reality, distinct but interconnected with one another: big data, artificial intelligence, Internet of Things, ubiquitous computing, platform and sharing economy—you name it—attract scholarly and public attention. Responses range from policy recommendations and actual regulation, to attempts to understand these phenomena within commonly shared economic and legal paradigms.

It is worthwhile to reconsider the possibility of realizing the idea of central planning in the light of these socio-technological changes. I contest Hayek's claim that data necessary for conducting the efficient planning can *never* be given to a computer, or a network of cooperating computers. Hayek's imagination was limited by the then-existing level of technological development. I claim that central planning might be practically feasible, and more efficient than markets, in the decades to come.

III

THEORETICAL PRECONDITIONS AND THE TECHNOLOGICAL INNOVATION

A. How Close Are We?

Let us re-consider the objections against the feasibility of an efficient planned economy:

1. It is impossible to aggregate the knowledge about available means of production and individual preferences;
2. Even if one did collect this knowledge, we would not have an algorithm for the resource allocation;
3. Even if we had the algorithm, we would not have the power to compute it;

56. See ETHEM ALPAYDIN, MACHINE LEARNING: THE NEW AI, at 1–54 (2016).

57. See generally PEDRO DOMINGOS, THE MASTER ALGORITHM: HOW THE QUEST FOR THE ULTIMATE LEARNING MACHINE WILL REMAKE OUR WORLD (2015).

58. See generally CATHY O'NEIL, WEAPONS OF MATH DESTRUCTION: HOW BIG DATA INCREASES INEQUALITY AND THREATENS DEMOCRACY (2016).

59. See generally Matthew U. Scherer, *Regulating Artificial Intelligence Systems: Risks, Challenges, Competencies, and Strategies*, 29 HARV. J.L. & TECH. 354, 393–98 (2016); Andrew Tutt, *An FDA for Algorithms*, 69 ADMIN. L. REV. 83 (2017).

4. Even if we computed it, there would be the problem of turning the plan into reality.

I address them one by one.

First, the problem of knowledge collection. Let us assume that every individual carries a device through which she can communicate—in real-time—information about her preferences, wants, and available resources. Such a device would need to have an interface enabling individuals to do so, and would need to be connected to the network aggregating the knowledge from all the devices in the economy. Ideally, some of this data collection would occur in the background, without requiring individuals to always consciously act. Moreover, such devices would need to enable the individuals to provide feedback—rating or reacting to various experiences—in order to keep their dynamic and changing preferences updated. In 2020, this problem does not exist. A significant majority of the American population uses internet-connected smartphones daily,⁶⁰ relies on social media giving them ability to rate almost everything,⁶¹ and receives personalized commercial and political communications based on revealed knowledge and ratings. Moreover, with the advent of ubiquitous computing and the so-called Internet of Things, a significant number of household and industrial appliances, from cars to fridges to warehouses to electric grids, contain computers measuring their performance and communicating with one another without direct human commands.⁶² In 2020, companies like Google, Facebook, and Amazon know more about individual preferences than do the individuals themselves.⁶³ We can collect and aggregate these data.

Second, the problem of the allocation-algorithm. All these data, one could argue, could be aggregated, but there is no way to understand it; nor to derive any prescriptive value from it. The first objection no longer holds. Advances in big data analytics technologies, like machine learning, demonstrate that machines are extremely efficient at detecting patterns in enormous datasets.⁶⁴ Advances in mathematics allow us to reason with incomplete data and approximations and still achieve results superior to those achieved by humans.⁶⁵ The impossibility of deriving prescriptive statements from descriptive data is a greater potential problem. However, the organizing value—efficiency—is not found in data, but

60. See *Mobile Fact Sheet*, PEW RESEARCH CTR. (June 12, 2019), <https://www.pewinternet.org/fact-sheet/mobile/> [<https://perma.cc/L64F-4WZM>] (finding that 81% of Americans owned a smartphone, three quarters owned a laptop or a personal computer, and nearly half owned a tablet device, as of June 2019).

61. See *id.* (finding that 72% of Americans used at least one social media site, as of February 2019).

62. See generally JOSHUA A.T. FAIRFIELD, OWNED: PROPERTY, PRIVACY, AND THE NEW DIGITAL SERFDOM 49–76 (2017) (describing the vast amount of data amassed each day by the so-called “Internet of Things”).

63. See SHOSHANA ZUBOFF, THE AGE OF SURVEILLANCE CAPITALISM: THE FIGHT FOR A HUMAN FUTURE AT THE NEW FRONTIER OF POWER 176–95 (2019).

64. See ALPAYDIN, *supra* note 56, at 29–54.

65. See Lin Chen et al., *Projection-Free Online Optimization with Stochastic Gradient: From Convexity to Submodularity*, 80 PROC. MACHINE LEARNING RES. 814, 814–15, <http://proceedings.mlr.press/v80/chen18c/chen18c.pdf> [<https://perma.cc/EF68-DHOT>].

rather assumed by the system. If our goal is an efficient allocation of resources, and we possess all the data about the available means of production *and individual preferences*, techniques like machine learning enable us to arrive at the optimal allocation. Remember that, to a large degree, what we want to do is to *simulate* markets' operation; or rather execute the same computation that the market executes, just in a less costly way.⁶⁶ We can design the allocation-algorithm.

Third, the problem of computing power. The power of individual computers doubles every two years⁶⁷ (anecdotally, each iPhone has a higher computing power than all the computers used by NASA to land on the Moon combined⁶⁸), and their sheer quantity of computers is rising as well. Moreover, we no longer assume that it must be a *single* computer performing all the operations. In 2020, with technologies like cloud computing and network-computing, the division of labor between thousands of client- and server-devices is a reality. We can compute this equation.

Fourth, the problem of fulfilling the plan. Let us assume that we know the optimal allocation of resources. How do we get from the plan to the actual allocation? First, the ability of individuals and organizations to communicate in real-time seems uncontroversial given the current state of technology. The problem of physical allocation remains. But here, too, technology is advancing. Soon, fleets of un-crewed vehicles like drones and self-driving cars might be able to transport people and goods around. Already in 2020, thanks to tracking devices in shipping companies' cars, and apps like Uber or Lyft, more and more data about efficient ways to allocate transport-resources becomes available.⁶⁹ We can realize the plan.

All this suggests that, as a theoretical matter, more efficient economy-wide resource allocation can be possible when we rely on central planning rather than on markets and individuals contracting.

If we can allocate resources more efficiently through a plan rather than using market mechanisms, why not consider doing so? This type of economic planning does not need to immediately replace all market structures. We could start with some sectors, where the efficiency gains could be the highest, or where the social costs of market operations seem the most undesirable. Arguably, in many sectors—like public healthcare, subsidized agriculture, and military spending—the economic models already resemble command and control much more than

66. See *The Computer and the Market*, *supra* note 5, at 158.

67. According to “Moore’s law.” Whether “doubling” is factually correct remains disputable, but without a doubt, the computing power of individual devices, as well as the overall computing power of all existing computers combined, is growing at an impressive rate.

68. See Tibi Puiu, *Your Smartphone is Millions of Times more Powerful than All of NASA’s Combined Computing in 1969*, ZME SCI. (Oct. 13, 2015), <https://www.zmescience.com/research/technology/smartphone-power-compared-to-apollo-432/> [<https://perma.cc/ZN4P-LUG>].

69. See PHILLIPS & ROZWORSKI, *supra* note 36, at 76–99 (showing how the experience and data collected by large scale logistics operations of huge market chains might be *the* ingredient that the socialist planners missed).

actual markets. Moreover, organizations already increase their ability to operate based on data, and continuously collect feedback.⁷⁰ These characteristics would facilitate a smoother transition to a planned economy.

One should remember that this type of economic planning does not need to be conducted by the state; nor does it need to be conducted “centrally,” if by “centrally” we understand this to mean that one entity makes all the decisions. The power to command and control could reside in private entities or a network of public bodies and private organizations. Further, under certain conditions, political decisions about allocation would take place only at the stage of designing or re-assessing the algorithmic allocation system which, once operational, would make decisions autonomously based on the data inputs.

B. If We Are So Close, Why Are We Not There?

One could object at this point by stating that the world sketched above is a piece of science fiction, so detached from reality, that any serious engagement with it is unwarranted. But this technology already exists. So why do we still live in a market economy?

First, the technology that would enable a planned economy is relatively new. And yet, the impact it has had in less than one generation is incredible. Google was launched in 1998,⁷¹ Facebook in 2004,⁷² the first iPhone sold in 2007,⁷³ and the first Uber ride took place in 2010.⁷⁴ In the meantime, reliance on these apps and services has increased exponentially, while the ability of these companies to aggregate “knowledge of time and space” and compute big data is constantly rising. When speaking of data companies and the planned economy, we are clearly too early into the process to claim that anything is impossible.

Second, and profoundly, merely thirty years have passed since the West defeated the Soviet Union and its satellites in the Cold War. “Planned economy,” especially in Eastern Europe, remains synonymous with poverty and authoritarianism—no one wants that, and so no one is trying to achieve it.⁷⁵ At least not under that label.

70. *Id.*

71. *From the Garage to the Googleplex*, GOOGLE, https://about.google/intl/en_us/our-story/ [<https://perma.cc/4HA9-L6QZ>].

72. Sarah Phillips, *A Brief History of Facebook*, GUARDIAN (Jul. 25, 2007), <https://www.theguardian.com/technology/2007/jul/25/media.newmedia> [<https://perma.cc/5XEL-C7JZ>].

73. *iPhone Premieres This Friday Night at Apple Retail Stores*, APPLE (June 28, 2007), <https://www.apple.com/newsroom/2007/06/28iPhone-Premieres-This-Friday-Night-at-Apple-Retail-Stores> [<https://perma.cc/74BN-2DQ9>].

74. *The History of Uber*, UBER, <https://www.uber.com/newsroom/history/> [<https://perma.cc/FEC8-S9ZX>].

75. Anecdotally, Phillips and Rozworski open THE PEOPLE’S REPUBLIC OF WALMART with a several-page-long apology for writing about Walmart in any other tone than unilaterally critical (expressing admiration for its logistic abilities). See PHILLIPS & ROZWORSKI, *supra* note 36, at 16–19. Conversely, whenever discussing this project with my friends and colleagues in (post-socialist) Poland, I find myself compelled to offer an apology for writing about a planned economy in a tone other than clearly negative.

Third, I am not claiming to *prove* that a centrally planned economy might achieve higher levels of efficiency than the market. However, I do believe that all the consideration up to this point warrants treating such a possibility not only as an interesting thought experiment, but also as a variation of a problem that, as a society, we might potentially face. Why would this be a problem? Apart from efficiency, there is one other reason to prefer individual property, contract, and markets over planning. Freedom.

IV

LIVING A CENTRALLY PLANNED LIFE

One could try to imagine a planned economy from the perspective of society or the perspective of an individual. In the following Part, I do the latter and sketch a picture of a person living a centrally planned life. The story has a dual purpose: to illustrate how such a world could look, and to prepare the foundation to analyze the interplay between the human condition and the tension between choosing and having things planned for oneself.

A. A Thought Experiment

Imagine you wake up to an alarm-clock tune that makes you happy and at the time that renders you refreshed and well-rested. You picked neither the tune nor the hour; an algorithm did, based on data about you and millions of others. You take a shower and put on comfortable and good-looking clothes. You are not sure how they got into the wardrobe, and at this point you no longer care. In the kitchen, a pre-cooked, drone-delivered breakfast waits for you. Exactly what you feel like eating. Your smart device tells you when the electric car will pick you up, and what work you will perform today. In the workplace, you feel challenged, but not exhausted. Lunch is great; you eat what you like with the people you find amusing. At the end of the day you go on a date with a person that you have never met. You go to see an interesting movie, then enjoy a delicious dinner, none of which you chose. Why do you and your date have so much in common? Why is this such a perfect match? These questions do not cross your mind anymore. Most of the time, it is a perfect match.

Every now and then there are glitches, of course. That is why you are asked to rate as many experiences as possible and to provide feedback along various dimensions. This feedback is taken into account. Too much salmon? The next day you dine on beef. Feel like listening to music instead of watching movies? There are live concerts. No longer enjoy the job you are doing this month? There are plenty of other things you can do. Feeling creative? Today you will be innovating. Too tired of thinking? Sure, oversee this production line.

You can express discontent as much as you like; we will make sure your life improves. You get what you want. To a degree. Sometimes, you get things you never even knew you would enjoy. There are, of course, things you cannot do. You cannot take two weeks off and fly to the tropics more often than once every

few years. Then again, no one you know can do that. And from what you learn about history, most people could have never done that before, either.

Still, sometimes, you are given a choice. Tell us, what would you like to eat today? How would you go about solving this problem? What movie to see? Whom to meet? You enjoy choosing, but only for a while. It turns out that choice is tiring, and the outcomes are always less satisfying than when you simply rely on the planner. At some point, you stop taking the risk.

Who makes all these plans? Who is “we”? From the phenomenological perspective, this is of secondary significance. What matters is that this does not have to be the government. This coordination could be conducted by a private firm, or a network of private firms, or a mix of both private and public entities.⁷⁶ Moreover, the granularity of decisions undertaken by the planner can also range from micro-management on the human level to general goal specification, further realized by the machines.

B. The Choices We Make About Making Choices

Libraries are full of life-descriptions written by the people who lived under communist dictatorships. Accounts of fear, food shortage, and general misery have been given by many inhabitants of the Second World in the twentieth century.⁷⁷ From this Article’s perspective, those accounts do not present philosophical problems. Without question, these circumstances were terrible, morally flawed, and should be unequivocally condemned and warned against. However, when one imagines a pleasant and satisfying life in a planned society, the moral significance of the trade-off between efficiency and freedom becomes salient. Do you prefer choosing everything in your life and more suffering; or choosing less in favor of a more convenient existence? Does your answer change depending on whether you struggle to pay the rent or struggle to choose what academic paper to write next? If you could vote for one or another, what would you vote for?

Clearly, individual preferences will differ, and there is no right or wrong answer. In this regard, people are different. Some people like more choices, some like less. Some like shopping, some do not. Some enjoy browsing catalogues for hours, some find it extremely tiring. There are people who detest having a boss, and some who are terrified with the idea of having to decide everything themselves. Similarly, there will be people who like the choices and risks

76. Note that, once you give up the right to choose, it becomes less relevant whether you did so through a market transaction with a profit-driven entity, or through a civic action with the government assuming power. It could matter regarding the types of constraints put on the planner (contractual versus constitutional), but in the analyzed hypothetical scenario, we assume that people are fine with the delegation and its outcomes.

77. See, e.g., ELENA GOROKHOVA, *A MOUNTAIN OF CRUMBS: A MEMOIR* (2011) (describing the daily life of a young woman in the Soviet Union in the 1960s).

associated with markets, and people who will like the idea of freeing themselves of these choices.⁷⁸

However, as a society, through our laws and political decisions, we do make choices about the overall answer to this question. The current debate about the future of the American healthcare system is one example. Is there value in people choosing their plans, even if some will choose to hurt themselves, and some will remain uninsured? Perhaps our society would be better off if there was less choice, but everyone's health expenses were covered. Food regulation is another example. Should people be free to eat unhealthily and buy cheap and tasty products, even if their health will deteriorate and place burdens on others? Or will we outlaw certain choices? Those are all public law examples. But markets in 2020 provide examples as well.

Arguably, our everyday life features more planning than we realize. Personalized ads and recommendations are one example. When searching for an iron or blender on Amazon, the user will see "Amazon's choice." This choice results from feedback provided by other users, and what Amazon knows about the individual shopper. Clearly, an individual can choose something else. But will they? Similarly, vacation advertisements are fine-tuned based on individual preferences and the availability of transport and lodging. Another example is the omnipresence of boilerplate contracts, whereby consumers essentially never bargain for the terms of contract or specifications of products and services purchased. Moreover, we witness a gradual move from the ownership model of music, videos, and cars, towards a subscription model of Spotify, Netflix, ZipCar, and Uber.⁷⁹ Is it better to invest upfront and own all the consequences, or to pay a small fee regularly, and only use when needed? Is it better to read reviews and compare product specifications, or to rely on the algorithmic suggestion? Again, individuals' choices and preferences will differ in this regard. However, their actions and professed goals might not always perfectly align (as I explore in the next Part).

Imagining a planned economy takes these questions a step qualitatively further. Instead of fine-tuning the choice architecture in which individuals still make decisions,⁸⁰ we take the choice away and outsource it to the planner.

C. The Human Condition and the Planning Crawling Upon Us

The question troubling me is: as a society, will we actually get to choose between efficiency and convenience on the one hand, and freedom and autonomy on the other? If we transition to a world other than that of liberal democracy,

78. This point has been made to me in conversation by the Honorable Guido Calabresi. For his discussion of the interplay between law, economics, tastes, and values, see generally GUIDO CALABRESI, *THE FUTURE OF LAW AND ECONOMICS: ESSAYS IN REFORM AND RECOLLECTION* 131–72 (2016).

79. See AARON PERZANOWSKI & JASON SCHULZ, *THE END OF OWNERSHIP: PERSONAL PROPERTY IN THE DIGITAL ECONOMY* 169–73 (2016) ("A future that deemphasizes ownership is not only inevitable, it's already here.").

80. See RICHARD H. THALER & CASS R. SUNSTEIN, *NUDGE: IMPROVING DECISIONS ABOUT HEALTH, WEALTH, AND HAPPINESS* 252 (2008).

though a world of material and sensational abundance, will this happen because as a society we decide to do so? Or will it happen without anyone's conscious choice about the structure, unnoticed, step-by-step?

This question should be taken up consciously, by a polity. Yet, I fear that it will not. Planned economic order could become reality not only as a result of political decisions, but also could slowly crawl upon us in a world governed by the alliance of nation-states and big tech multinationals. Having our lives algorithmically planned for us could, at some point, lead to more efficiency, more wealth, more convenience, and more pleasure, at the cost of personal liberty. This would be in line with the changing nature of the twenty-first centuries' authoritarianisms, which do not oppose consumerism or personal wealth, but rather lure people with those things exactly.⁸¹ In this picture, individuals do not have liberty taken away from them; rather bit by bit, they *give it up* in exchange for easy and pleasant lives. Not at once, maybe not even within one generation, but they do. What would this look like?

Two distinctions might be helpful at this point: between a marginal cost of every decision seen against the overall structural change, and between short- and long-term preferences of individuals (or maybe better—impulsive decisions seen against the individuals' professed goals). Let us take a brief look at both.

First, it is possible that every single choice one makes is, in itself, rational, while the sum of all choices turns out to be, in hindsight, very costly and therefore ultimately irrational. Guido Calabresi told me the story of how a century ago, New Haven, Connecticut had the second-highest concentration of houses dating back to the eighteenth-century in the United States.⁸² Today, three are left. None of these houses were individually worth keeping. But dozens of rational demolitions led to doing away with something grander that people did not realize was valuable. Similarly, it might be rational to outsource decisions about dietary choices, clothing, entertainment, or employment to the planner. It might make sense, for every single individual delegation, to free oneself from having to deal with some costly decision-making process. And yet, all these delegations might lead to losing something grander—personal liberty.

Second, it might be even simpler than that. As developments in behavioral and cognitive sciences prove over and over again, individuals seldom act fully in accord with their professed goals.⁸³ To appreciate this point, consider an individual on a diet, making a decision about whether to eat a chocolate cake or not. He might see the negative effects of eating the cake, seen against the goal of losing weight, already at the moment of the decision. But in this very moment,

81. China is an extreme example of this trend, where the growing middle class has been allowed to get richer and enjoy their lives more, at the cost of not challenging the political decisions by the Communist Party. See David Goodman, *Why China's Middle Class Supports the Communist Party*, HUFFINGTON POST (Jan. 23, 2014), https://www.huffpost.com/entry/why-chinas-middle-class-s_b_4143250 [<https://perma.cc/NR4F-9ZCV>].

82. Interview with Hon. Guido Calabresi, Senior Judge, U.S. Court of Appeals for the Second Circuit, in New Haven, Conn. (Dec. 5, 2019).

83. See generally DANIEL KAHNEMAN, THINKING FAST AND SLOW 109–98 (2011).

being tired, and stressed, and hungry, and unhappy, the chocolate cake has all the appeal in the world. Similarly, even seeing the negative long-term consequences of giving up on singular liberties, we might—in the moment of doing so—find small transitions from market to planning too appealing to give up on.

There exists a certain version of planned economy which necessarily leads to authoritarianism. However, not because it will *fail*, but because it will *succeed*. This success will come with many rewards for the individual, but cannot be logically reconciled with certain types of freedoms and life choices.

The temptation to give up freedom exists. The prospect of releasing oneself from the ability, but also from the necessity, to make choices and to assume responsibility for them seems attractive to some, if not to many. It might not be appealing to you. It might flatly terrify you. Or, you might despise the idea of someone else making such a choice. However, are you certain that all our fellow humans share this opposition?

If people are forced to give up freedom together with wealth, opportunities, and pleasures, they will fight back. But if people are offered a choice to have less stressful, more convenient, and more pleasant lives—in exchange for losing some liberties—they might be willing to pay that cost. In the end, many individuals could actually be happy in such a world. Unless we believe that a precondition of actual happiness is having an ability to choose, including a right to be wrong and a duty to suffer the consequences of being wrong; unless we believe this is necessary, people could lead happy lives in a planned society, without property, contracts, or markets.

This account raises two questions: what do I mean by *happy* and what do I mean by *authoritarianism*? In the end, is merely having one's needs satisfied enough to be happy? Or, conversely, if the outcomes delivered by the planner align to the highest possible degree with the preferences of an individual, that is, the planned choices mirror the choices the individual would have taken in the world of perfect competition,⁸⁴ how is that authoritarian?

One can tell a positive and a negative story in response. The positive story would stipulate a world in which individuals delegate freedoms regarding the basic needs to the planner, in order to achieve a space and time for the pursuit of the highest modes of fulfillment—quality time with family, intellectual discussions, religious engagement, creation and admiration of art, and so forth.

84. Note that, under a certain set of assumptions—in which perfect information about available means of production and individual needs and preferences exists, *and* assuming that preferences are *independent* of the mode of information conferring—the outcome of the market process and of central planning would, in theory and on paper, be exactly the same. In this sense, the question on whether to prefer markets to planning depends on their relative efficiency and on the alternative costs. For the argument that advancements in data processing technologies could make markets more efficient, see generally ERIC POSNER & GLEN WEYL, *RADICAL MARKETS: UPROOTING CAPITALISM AND DEMOCRACY FOR A JUST SOCIETY* (2018); Rory van Loo, *Digital Market Perfection*, 117 MICH. L. REV. 815 (2019). For a critical comment on Posner and Weyl's account towards, among other things, a centrally planned economy, see generally Hanoch Dagan, *Why Markets? Welfare, Autonomy, and the Just Society*, 117 MICH. L. REV. 1289 (2019).

The mental and physical faculties currently overtaken by chores, shopping, planning, and overtime-working would be freed. The negative story would, in turn, imagine individuals so deeply immersed in physical sensations, so distracted with the constant, fresh inflow of stimuli causing their brains to release dopamine, that they will never find time necessary to reflect on the lack of liberty in their lives. In order to see that one needs time for reflection to be happy one needs to have time for reflection in the first place.

Authoritarianism, in my view, has to do with the space individuals have for shaping their preferences themselves. One could imagine feeling happy in the world where one's needs are satisfied, especially if the planner is also in charge of the needs-creation. Just as in Huxley's *Brave New World*, we could become people *conditioned* to like what we get.⁸⁵ Arguably, we already are conditioned for that along many dimensions, ranging from school curricula to omnipresent ads. However, in today's world, the choice is still normatively ours. Although we might be sliding into one where it no longer is.

Whether this slide into algorithmic authoritarianism should be allowed to happen is a normative question. I do not argue that such a world is, in principle, immoral. I think it is, but I accept that others might not share my assessment. However, if this happens, this should not happen *by accident*, as a result of a thousand micro-choices, without the big picture and the long-run in mind. Rather, our society must consciously create the conditions which allow this to happen. This is where one should ponder what roles are played (and are not played) by the law.

V

ROLES (TO BE) PLAYED BY THE LAW

A. Institutions, Incentives, and Ideas

The most fundamental claim of Karl Polanyi's *Great Transformation* is that markets are neither natural nor necessary, and do not arise by themselves.⁸⁶ Every community, in his view, has an economy. Not every polity has a market. For markets to emerge, certain legal institutions must be in place. According to Polanyi, this emergence occurs when three "fictitious commodities"—labor, land, and money—are created by law.⁸⁷ Legal institutions facilitating trade in land and labor, together with the universal role played by money as a means of storing value and facilitating exchanges, are useful fictions that enabled market-based, capitalist economies to grow.

If the law provided the institutions for the emergence of the market economy, it has been ideology and material conditions that led people to make use of them in the particular way. Max Weber argues that a fundamental shift in people's way

85. See generally ALDOUS HUXLEY, *BRAVE NEW WORLD* (1932).

86. See generally POLANYI, *supra* note 6.

87. See generally *id.*

of thinking about a good life needed to occur for capitalism to emerge.⁸⁸ Instead of wanting to preserve their way of life, people needed the urge to accumulate resources for accumulation's sake. New industrialists, taking risks to create more wealth than they could ever possibly consume, needed to believe that such an activity is both morally acceptable and, for some reason, desirable.

The role played by private law is therefore chiefly that of enabling certain social practices, rather than directly allowing or prohibiting, or serving as an instrument for dispute resolution. However, this legal move created the necessary, but not sufficient conditions for the transformation into capitalism. What was missing was the ideological fuel.

Why does this matter for the question of algorithmic central planning? Two reasons stand out: the law is a source of incentives, and law creates institutions. Regarding the latter, the law might be a source of an ideology, or might be normalizing new ways of thinking,⁸⁹ but the changed societal worldview might, and most probably will, come from other places as well.

Incentives to collect information, cut costs of marketing and production, and optimize processes are inherent in capitalism. The better a firm understands the market, consumers' needs, and competitors' strategies, the higher the chance that firm will make a profit. However, the very existence of this paradigm is predicated on the assumption that—as a society—we are better off with this model of economic activity. In a world in which the goal is efficiency, the market is the first choice only as long as it delivers more efficient outcomes.

Regarding institutions, one should focus not only on those explicitly created by private law but also those which emerged as part of the social practice in the void created by the law's inaction.

Consider the right to collect, analyze, and use personal data by online service providers. This data is the source of the potential future planner's knowledge about individual needs and preferences, as well as available means of production and circumstances of time and space. But, it is by no means natural or necessary that companies should be allowed to gather and use all the data about people they can find. Julie Cohen calls this situation a "biopolitical public domain," where whoever manages to capture information about people's lives and experiences is free to use it.⁹⁰ In her view, the lack of legal fictions plays a similar role to the creation of the Polanyian fictitious commodities.⁹¹ As a result, as another great book recently put it, we already live in a "surveillance capitalism," where human experience can be traded and "behavioral futures"—that is,

88. See generally MAX WEBER, *THE PROTESTANT ETHIC AND THE SPIRIT OF CAPITALISM* (Talcott Parsons trans., 1905) (suggesting that propagation of the Protestant Ethic ideology—which valued the accumulation of resources—enabled modern capitalism to develop and flourish).

89. See CALABRESI, *supra* note 78, at 157–72.

90. See JULIE COHEN, *BETWEEN TRUTH AND POWER: THE LEGAL CONSTRUCTIONS OF INFORMATIONAL CAPITALISM* 73 (2019).

91. See *id.* at 15–47.

promises of human behavior to come — become a collateral bought and sold.⁹² All this is possible because data can be captured, analyzed, and traded. And in many ways, this leads to more efficient outcomes. Intuitively, the more we know about what people want, the better we can match their needs. We want to match their needs perfectly. Hence, there is an incentive to know as much as possible. And the law, by failing to identify data as a legally-recognized resource, paves the way.

In addition, the law does little to prevent corporations from *shaping* the preferences of individuals. One of the surprising absentees in the theoretical stable of law and economics is the practice of advertising. We seem to assume that what ads do is, exclusively, to spread information. We police deceptive or misleading ads. In other words, as long as information in ads is not false, there is no claim against the advertiser. However, both the theory of marketing and the amount of money spent on it suggests that more is at play. Ads do not just provide information, they also shape preferences and incentives. In a world where companies are fully free to do so, algorithmic planning (replacing the markets both in the role of shaping preferences and providing supply) is a looming possibility.⁹³

However, just as capitalism was constructed both by legal institutions (commodification of land, labor, and money) and by the shifts in ideology (credited, by Weber, to the theology and practice of certain protestant denominations⁹⁴), the algorithmically planned economy will emerge within legally enabled frames, but following people's shared ideas of what constitutes a good life.

What are these ideas and where do they come from? Without claiming to know *the* answer, I am quite certain that the cult of efficiency is one of them. As of today, this paradigm coexists with the cult of productivity and finding pride in being busy;⁹⁵ but this does not have to remain this way. For, simultaneously, we observe the growing importance of entertainment in people's lives. Whether distractive practices like social media, binge-watching Netflix, or the popularization of news delivery and mass culture are responses to people's actual needs, or business models of addiction, the trend of wanting to be entertained continues. Finally, perpetually busy and distracted individuals value convenience to a growing degree, exemplified by one-day Amazon delivery, the booming of food delivery services like Grubhub or Deliveroo, or growing amount of services one can receive right at one's phone.

With all this in mind, one can wonder how far we are from the world in which individuals themselves will no longer choose and make contracts in a marketplace. Where individual choice is no longer the paradigm.

92. ZUBOFF, *supra* note 63, at 7–8.

93. For a critical take on this state of affairs, and an analysis from the consumer and antitrust law perspective, see generally Ramsi A. Woodcock, *The Obsolescence of Advertising in the Information Age*, 127 YALE L.J. 2270 (2018).

94. See generally WEBER, *supra* note 88.

95. See MARKOVITS, *supra* note 49, at 82–88.

I think we are closer to that point than we would like to believe.

B. What Could the Law Do?

What could the law do? Note that I do not claim that the world of the algorithmically planned economy is necessarily morally flawed and must be prevented. What I do claim is that we should not end up living in this world by accident. A conscious social decision should be made. As of today, it seems to me, the conditions precedent for the unconscious move to materialize are present. How can the law enable us to make such a decision democratically?

First, we need to shed light on the data-driven practices of personalized experience. As of today, we understand very little about how the chipping-off of our personal choices actually works. The privacy policies of online companies do not contain enough information to make sense out of their practices.⁹⁶ We need better information about the steps taken towards algorithmic central planning. Once we have a better understanding of the preference-shaping activities of corporations, we might be able to see clearly where steps need to be taken to increase private autonomy and where its preservation in the long run might require public-law interventions.⁹⁷

Second, we need to address an “elephant in the room” of private law: the question of the border between information-conferring and behavior-manipulation in advertisements. As of today, the threshold for ads’ legality is very low—as long as the information contained is not false, the ads are in principle legal. However, these laws have been written for a world without immediate transactions and without advertisers’ ability to continuously collect feedback on each communication’s efficacy. Whether the corporate ability to shape consumer preferences and to essentially create demand should be limited is a question that should be reclaimed by political discourse.

Third, if we do want to prevent (or slow down) the emergence of an algorithmically planned economy, we should ponder various ways of inserting friction into the system. This friction might come from: more stringent regulation of data collection and usage; actively employing antitrust law to promote competition; or simply outlawing certain marketing strategies. In doing so, however, we should be mindful of the regulatory goal—some moves might buy us time without changing the overall course of the society.

Nevertheless, the law can only provide frames for what will be filled by human nature and culture. The creation of fictitious commodities was a necessary, but not sufficient, step in the emergence of capitalism;⁹⁸ certain ideas and material

96. See Marcus Moretti & Michael Naughton, *Why Privacy Policies Are So Inscrutable*, ATLANTIC (Sept. 5, 2014), <https://www.theatlantic.com/technology/archive/2014/09/why-privacy-policies-are-so-inscrutable/379615/> [<https://perma.cc/6AP2-PLDK>] (“Today’s privacy policies don’t tell consumers the whole story.”).

97. See Przemysław Pałka, *Data Management Law for the 2020s: The Lost Origins and the New Needs*, 68 BUFF. L. REV. (forthcoming 2020).

98. See generally POLANYI, *supra* note 6.

conditions needed to occur. Similarly, for the choice between efficiency and freedom to be taken by society, a sufficiently large number of people sharing ideas necessary to make it must materialize. This role can be played by philosophy, art, religion, and even politics. What I want to do here is ring the bell. Let us see whether it resonates.

VI

CONCLUSION

In this Article, I have argued that an economic order based on planning might soon be possible and might achieve higher levels of efficiency than an economy relying on private property, contracts, and market exchange. Such a possibility stems from socio-technological changes in our everyday practices, triggered by ubiquitous computing and advancements in data analytics techniques like machine learning. As a result, three issues become pertinent.

First, when pondering economic and social reform, progressive thinkers should put the idea of a planned economy back on the table. The market paradigm is not the only possible economic order. Algorithmic planning does not have to be conducted entirely by the government, and not necessarily by a single entity. The commands could also be given by a network of public bodies and private firms. Moreover, planning does not have to replace markets in all sectors of the economy. However, in the areas where we can achieve significant efficiency increases—like healthcare, agriculture, and transport—algorithmic economic planning should be considered a viable alternative to markets.

Second, if an order based on planning could be more efficient than one based on markets, a new normative question comes to the fore: do we prefer liberal economic systems because they lead to more efficiency, or because they enhance individual autonomy? As of today, a tacit alliance of both approaches exists. However, taking a full-fledged pro-efficiency stance might slowly render markets and private law obsolete. If the reason for private property and contracts is efficiency, once it becomes more efficient to plan, no space for markets will remain. Working out the boundary conditions is a central task for normative theorists.

Third, as a society, we might transition into a world of planning tacitly, step-by-step, without ever making a conscious decision to do so. Such a transition would gradually happen because individuals would freely choose to give up elements of their autonomy in piecemeal fashion. The conditions for this transition are created both by the institutions and incentive structures present in the law, and by the commonly shared ideas about what constitutes a good life. A world of algorithmic central planning would not necessarily be immoral, but this choice is political and should be taken up consciously by the polity. Law provides the framework for such deliberations, but the fuel must come from other social sources.