

BEYOND CAPITALISM—I

Groundwork for a Multi-Criterial Economy

FEW WOULD DISAGREE that beneath today's political turbulence there lies a profound economic malaise. Growth rates in the advanced economies are stagnating; when pumped by stimulus, the gains go disproportionately to upper-income brackets. Oligopolistic firms have repositioned themselves at the pinnacles of global value chains, retaining property rights while outsourcing the processes of production to ever-cheaper bidders, forced to compete among themselves. Large portions of corporations' retained earnings are no longer invested domestically but channelled into financial assets, 'de-risked' by public bailout. Meanwhile, investment decisions that will shape the future of life on earth—geo-engineering, artificial intelligence, carbon capture, nuclear power—are taken by tiny private coteries, incentivized to back the riskiest long shots.¹

Underlying this vertical trend towards the oligopolistic consolidation of economic power, there has been a secular horizontal shift in economic activity, from manufacturing into services—health, education, retail, administration—where productivity growth rates are lower and profitability can only be maintained through intensified exploitation or higher prices. Deindustrialization has been unfolding for a half-century in advanced economies. Symptoms of 'premature deindustrialization', long entrenched in Brazil and South Korea, are now appearing in China. And everywhere, falling birth rates mean fewer young workers and consumers, shrinking future markets and weakening incentives for private investment in expanding productive capacities just as care burdens rise. Unmet social needs proliferate; material wants like poverty, hunger, disease and inadequate housing compound growing levels

of ecological degradation, social alienation and psychological stress. If there is ever to be a left break beyond the current political impasse—the liberal-capitalist establishment locked in a wrestler’s embrace with the ultra-capitalist right—it will ultimately require the elaboration of an economic system beyond capitalism itself.²

Historically, the defence of capitalism has rested on its results. Its ruthless focus on profitability has never been only about exploiting workers or extracting resources to enrich coupon-clipping investors. Especially in earlier periods, the drive for profit also served socially useful ends—chief among them the pursuit of economic efficiency, both in static terms (minimizing costs and maximizing revenues) and in dynamic ones (developing more efficient production methods and entirely new products). Capitalism’s profit drive helped generate extraordinary leaps in material living standards—reflected not only in rising monetary incomes, but also in a proliferation of transformative process and product innovations. The former includes the assembly line, container shipping and computer-numerical control; the latter, indoor plumbing, electricity, railroads, cars, planes, washing machines, computers, pharmaceuticals,

¹ On the world economic situation see, *inter alia*: Lawrence Summers, ‘Reflections on the “New Secular Stagnation Hypothesis”’, in Coen Teulings and Richard Baldwin, eds, *Secular Stagnation: Facts, Causes and Cures*, London 2014; Robert Gordon, *The Rise and Fall of American Growth: The US Standard of Living since the Civil War*, Princeton 2016; Dietrich Vollrath, *Fully Grown: Why a Stagnant Economy Is a Sign of Success*, Chicago 2020. See also Aaron Benanav, *Automation and the Future of Work*, London and New York 2020.

² A foundational work here is Pat Devine’s *Democracy and Economic Planning: The Political Economy of a Self-Governing Society*, Boulder CO 1988. In recent years there has been a welcome resurgence of work on post-capitalist futures, with important studies like Daniel Saros’s *Information Technology and Socialist Construction*, Abingdon 2014, and Evgeny Morozov’s ‘Digital Socialism?’, NLR 116–117, March–June 2019, integrating the revolution in digital infrastructure into proposals for non-market coordination. Leigh Phillips and Michal Rozworski have given input-planning a radical twist in *The People’s Republic of Walmart*, London and New York 2019. Nick Srnicek and Alex Williams’s *Inventing the Future: Post-Capitalism and a World without Work*, London and New York 2015, Anitra Nelson’s *Beyond Money: A Post-Capitalist Strategy*, London 2022, and Simon Sutterlütti and Stefan Meretz’s *Make Capitalism History: A Practical Framework for Utopia and the Transformation of Society*, Basingstoke 2023, are further instances of this fresh and imaginative thinking. While drawing on the strengths of this rich and variegated body of work, the present contribution foregrounds the need for a robustly institutionalized architecture of multi-criterial economic democracy as the foundation of a post-capitalist order.

ready meals and fast fashion. In the richest countries, average real incomes have expanded by a factor of twenty since the 1820s and across the world as a whole by a factor of more than ten.

Capitalism is thus more than a system of market exchange rooted in exploitation and extraction. It is a distinctive type of market economy—based on concentrated private property and wage-dependent labour—in which firms must compete for market share, and hence for profit. Profit is not just a reward for efficiency-focused activity, but also a source of investment funds which highly efficient firms use to expand their operations.³ The search for monetary returns on investment engendered an economic dynamism without historical parallel. Earlier modes of production, even those with significant markets, developed at a far slower pace, with cycles of demographic expansion and contraction spanning centuries, while agricultural practices remained stagnant for generations. Capitalism's profit imperative, by contrast, compelled firms to pursue continual innovation—both in processes that reduce costs and liberate resources, and in products that redirect those resources towards new forms of revenue generation. Together, these dynamics produced a sustained trajectory of economic growth.

But capitalism's very successes have generated problems that the pursuit of profit is not equipped to solve. The vast build-out of manufacturing and urban growth, compounded by rising fossil-fuel consumption, threaten the planet's environmental and climatic systems. The entry of billions of new rural workers into the capitalist labour force puts downward pressure on wages, while the glut of productive capacity speeds capital's flight into financial assets. Soaring longevity, thanks to medical advance, and falling birth rates, as horizons opened for women beyond hearth and home, combine in a demographic drag-weight of care.⁴ With

³ See, for different perspectives, Karl Marx, *Capital: Volume III*, London 1993, Chap. 15; John Maynard Keynes, *The General Theory of Employment, Interest and Money*, London 1936, esp. Chap. 11; Josef Steindl, *Maturity and Stagnation in American Capitalism*, Oxford 1952; Hyman Minsky, *Stabilizing an Unstable Economy*, New Haven 1986, Chap. 8; and Anwar Shaikh, *Capitalism: Competition, Conflict, Crises*, Oxford 2016, Chap. 7 and 13. For an insider perspective, see Richard Brealey, Stewart Myers and Franklin Allen, *Principles of Corporate Finance*, New York 2017, twelfth edition.

⁴ I discuss these issues in more detail in 'A Dissipating Glut?', *NLR* 140–141, March–June 2023.

the global engines of growth now faltering, the defence of capitalism by its results is increasingly hard to mount.

When an economy built around economic efficiency runs out of efficiency gains, it stagnates. Inequality rises; speculative excess intensifies. Socially destructive profit-seeking strategies—externalizing costs onto the environment, suppressing wages, entrenching monopoly power—are always present, but they grow more aggressive, as capital turns towards exploitation, extraction and enclosure. As growth recedes, the human needs and aspirations bracketed by capitalism’s exclusive pursuit of profit-driven efficiencies are left exposed. Its defenders had always argued that capitalist growth would supply the best means to deal with broader social challenges, whether political, cultural or environmental.⁵ Yet attempts to incorporate other principles into capitalist operations—ethical consumption, ESG investing, corporate social-responsibility programmes—remain constrained by the system’s profit-driven logic. Qualitative goals are reduced to quantitative targets, producing performative compliance with little tangible effect. Similarly, broader state-backed reforms aim to ameliorate the system by introducing secondary goals—social-democratic measures, environmental regulation—while leaving the logic of ‘single-criterion optimization’—that is, production for profit—unchanged. These programmes can play a welcome role in mitigating exploitation and ecological harm, but they remain at the mercy of capitalism’s profitability requirements and will be scythed by public-spending cuts should state revenues fall short.

But then, the deeper problem is not just that capitalism is failing to live up to its promise of rising living standards—the issue is that living standards are understood in an extremely narrow way: in terms of incomes, as measured by GDP per capita. Organizing a society around a single metric will always be an impoverished way of structuring collective life. The same logic would apply to any economy organized around a single guiding principle. Even a post-capitalist social order that abandoned profit maximization while maintaining output maximization as its organizing goal would still operate through single-criterion optimization. No matter which metric is chosen, the result is always a radical simplification of the multi-dimensional problems we face.

⁵ For a full-throated statement of this case, see Martin Wolf, *Why Globalization Works*, New Haven 2004. The argument has been partially repudiated by the author in his latest book, *The Crisis of Democratic Capitalism*, London 2023.

The goal, therefore, should be to create an economic system in which coordination could be structured according to multiple criteria. The immense technical and productive capacities of modern economies would be directed towards meeting broader human ends, evolving over time. Socialism has sometimes been framed as the pursuit of free time, of environmental balance, of foregrounded social care; but it could pursue all those goals—and more.⁶ Trade-offs across our goals will be inevitable; no society can maximize all priorities at once. But these trade-offs could be collectively negotiated through political debate, rather than dictated by an impersonal logic. The task is to build an economic order capable of evolving to accommodate new values and changing conditions, steadily adjusting the organization of production to encompass them. A multi-criterial economy would thus demand a fundamental shift in how production is organized and how economic decisions are made.⁷

This framework would go beyond the notion of transforming the economy to serve the majority—an economic democracy *for* the people—or including workers in its administration—a limited form of economic

⁶ On socialism as free time, see André Gorz, *Critique of Economic Reason*, London and New York 1989; Kathi Weeks, *The Problem with Work*, Durham NC 2011; Srnicek and Williams, *Inventing the Future*; Martin Hägglund, *This Life: Secular Faith and Spiritual Freedom*, New York 2019; Helen Hester and Will Stronge, *Post-Work: What It Is, Why It Matters and How We Get There*, London 2025; on socialism as sustainability, see Barry Commoner, *Making Peace with the Planet*, New York 1990; Paul Burkett, *Marx and Nature: A Red and Green Perspective*, New York 1999; and Kohei Saito, *Slow Down: The Degrowth Manifesto*, New York 2024; on socialism as care, see Nancy Fraser, *Fortunes of Feminism: From State-Managed Capitalism to Neoliberal Crisis*, London and New York 2013; Emma Dowling, *The Care Crisis: What Caused It and How Can We End It?*, London and New York 2021; and the Care Collective, *The Care Manifesto*, London and New York 2020.

⁷ The idea of multi-criteriality has ‘long been part of the tradition of ecological economics’, as Joan Martinez Alier noted in these pages thirty years ago: ‘Incommensurability means that there is no common unit of measurement, but it does not mean that we cannot compare alternative decisions on a rational basis, on different scales of value, as in multi-criteria evaluation.’ See J. Martinez-Alier, ‘Political Ecology, Distributional Conflicts and Economic Incommensurability’, *NLR* 1/211, May–June 1995, p. 75. For the argument that values evolve through experience, reflection and social learning, see John Dewey, *Human Nature and Conduct*, New York 1922. On the mainstream assumption of fixed, exogenous preferences in economics, see Paul Samuelson, *Foundations of Economic Analysis*, Cambridge MA 1947; Milton Friedman, ‘The Methodology of Positive Economics’, in *Essays in Positive Economics*, Chicago 1953. For a foundational critique, see Amartya Sen, ‘Rational Fools: A Critique of the Behavioural Foundations of Economic Theory’, *Philosophy and Public Affairs*, vol. 6, no. 4, 1977.

democracy *by* the people.⁸ It also challenges traditions on the left that imagine a world beyond capitalism as a world beyond politics. Under socialism, August Bebel imagined, personal interests and social interests would coincide so fully that ‘the satisfaction of personal egotism and service of society will be harmonious’.⁹ The democratization of production would involve technical debate—productive capacities, social needs, labour-time embodied in each product—but not substantive political disagreement. Yet the socialist canon also contains more open-ended conceptions of collective agency. Echoing Marx, Engels famously wrote that only under socialism would ‘man himself, with full consciousness, make his own history’. Kautsky, too, insisted that a socialist regime would ‘from the beginning seek to organize production democratically’.¹⁰

The aim here is to extend this broader conception of economic democratization—while criticizing the limited ways that this democratization was understood in the past. What follows will trace the fortunes of an intrinsically multivalent idea of socialism as it encountered the growing complexity of modern capitalist society, from the early utopians to the Bolshevik Revolution and beyond. It will examine the signal attempts by heterodox thinkers to conceive forms of coordination beyond the profit motive and the central plan, building on their insights and breakthroughs to lay the groundwork for a genuinely multi-criterial economic order. In

⁸ On the idea of economic democracy as workers administering the economy, see Karl Marx, *The Civil War in France*, London 1871; Vladimir Lenin, *The State and Revolution*, Moscow 1969 [1917]; Nikolai Bukharin and Yevgeni Preobrazhensky, *The ABC of Communism*, London 1922 [1920].

⁹ August Bebel, *Women and Socialism*, New York 1910 [1879]. See also the Erfurt Programme of 1891, which echoes this frequent theme in socialist literature: the belief that, after the revolution, both society and the economy will become harmonious—not only through the resolution of class antagonisms but also through the planned elimination of crises of over- and under-production.

¹⁰ See respectively Friedrich Engels, *Anti-Dühring*, Moscow 1977 [1878], echoed of course in Lenin, *State and Revolution*; Karl Kautsky, *The Social Revolution*, Chicago 1903 [1902]. In the context of general political discourse, Kautsky tended to lapse back into Bebel’s understanding of democratized production as purely technical debate. By contrast Alexander Bogdanov’s *Red Star*, Bloomington IN 1984 [1908], in which Martian scientists argue over whether to invade Earth or Venus in response to resource depletion on their own planet, represents a rare moment of real political argument in a socialist utopia, though notably, the debate remains confined to experts.

Part Two of this study, to be published in the next number of *New Left Review*, I will outline the institutional architecture needed for such an order and set out the steps of a transitional programme that could connect today's immediate struggles to a broader social transformation.

I. A BROADER TRADITION

Conceptions of a multi-criterial economy date back to the first stirrings of capitalism itself. In Thomas More's *Utopia* (1516), the narrator laments the plight of the English tenant farmers, dispossessed by the enclosures of the highly profitable wool trade. 'Wherever you have private property, and money is the measure of all things, it is hardly ever possible for a commonwealth to be just or prosperous', his interlocutor replies.¹¹ *Utopia* portrayed a country where goods were held in common, freely dispensed from public storehouses. For More, the eradication of money would make possible the realization of multiple social goals, not only security for all but also greater durability of products and an increase in access to free time. In seventeenth-century England, Winstanley cast a similar project in more biblical terms, calling for the earth to become 'a common treasury'. In eighteenth-century France, Rousseau also saw a connection between wealth and injustice: the law served merely as a justification for the rich; the role of money should be sharply reduced, if not abolished, with a return to household production and fulfilment sought through active citizenship and collective life. In 1796, as the momentum of the French Revolution went into reverse, 'Gracchus' Babeuf and his Conspiracy of Equals drew inspiration from More's *Utopia*.¹²

By the 1820s, a new generation of utopians—Owen, Fourier, Saint-Simon—was theorizing the role that industrial machinery might play in a community-regulated economy. In 1839, their radical-republican contemporary Étienne Cabet was the first to call for a communist movement. Cabet read *Utopia* at Owen's urging while in exile in England and

¹¹ Thomas More, *Utopia*, Cambridge 1975, p. 37.

¹² In *The Social Contract*, London 2003 [1762], Chap. 15, Rousseau claims that 'in a truly free state the citizens do everything with their hands and nothing with money'. See also Stéphanie Roza, *Comment l'utopie est devenue un programme politique*, Paris 2015.

drew upon it for his *Travels in Icaria* (1839), whose title page proclaimed the slogan, 'To each according to his needs, from each according to his abilities'—famously borrowed by Marx to describe the 'higher phase of communist society' in the *Critique of the Gotha Programme* (1875).¹³ Like More, Cabet saw the aims of a moneyless economy as plural. He printed those aims in the shape of a diamond directly above his famous slogan: such an economy would foster love, justice, mutual aid, universal insurance, the organization of labour, the use of machines for the benefit of all, the arts and more.

It was this early, multi-criterial version of communism that Marx encountered as a 25-year-old in 1840s Paris and transmitted, in a modernized and vastly more sophisticated form, to the mass workers' movements that arose from the 1870s amid the Second Industrial Revolution. As he noted in his polemic with Proudhon, the plight of the handloom weavers, confronted with the vastly higher output of mechanized power looms, showed that simply introducing a 'truer' form of money based on labour time would not abolish inequality; the entire mode of production had to be transformed, with community regulation replacing the quest for private profit. Above all, the communal organization of the economy would allow other values to come into play.

Marx famously proclaimed (in the 1873 afterword to the second German edition of *Capital, Volume One*) that he wouldn't write recipes for the cook-shops of the future. They would be written by the cooks themselves. Nevertheless, his criticism of actually existing capitalism—its degradation of the soil, contamination of the product (bread bulked out by sawdust) and exhaustion of the worker—outlined what the contrast might entail. The associated producers of the future would abolish the reign of the monetary economy in order to structure their work around multiple criteria: including above all the restoration of the ecological conditions of life, universal economic security, the end of exploitation and the expansion of a realm of freedom for all to enjoy. For both Marx and Engels, the first steps towards a post-capitalist future seem to have involved the institution of a radical democracy to end the political rule of the capitalist class—hailed by Marx in the form of the recallable

¹³ See Étienne Cabet, *Travels in Icaria*, Syracuse NY 2003. See also Paul Corcoran, *Before Marx: Socialism and Communism in France, 1830–48*, London 1983; Christopher Johnson, 'Communism and the Working Class before Marx: The Icarian Experience', *The American Historical Review*, vol. 76, no. 3, June 1971.

delegates of the Paris Commune—then a ‘groping forward’ through nationalizations, a wealth tax and other transitional measures, while combating capitalist resistance.¹⁴

By the late nineteenth century, the sheer expansion of economic production made it seem less necessary to articulate specific social goals. The socialization of production appeared likely to bring about such a rapid increase in output that further specification seemed beside the point—except to emphasize the radical expansion of both consumption and free time it would enable. This vision of the future, popularized in works like Bebel’s *Woman and Socialism* (1879), Bukharin and Preobrazhensky’s *ABC of Communism* (1919) and James Kennedy’s *The Lumber Industry and Its Workers* (1922), was taken up by the mass socialist parties, which essentially shared the More-to-Marx ideal of a community-run economy, freed of money and private property, albeit now with the working class in the role of universal liberator. At the same time—Kautsky’s rejection of blueprints was typical in this—they still refused to plan for planning; how to go about the socialization of the economy would be obvious to those undertaking it. The reality, of course, was not a steady advance towards socialism but a precipitous descent into the industrial slaughterhouse of the First World War, backed by major sections of the international workers’ movement.

The revolutionary wave of 1917–21 that arose from that maelstrom—with mass uprisings across the Russian, German and Austro-Hungarian lands as the imperial orders fell, and Soviet republics declared in Bavaria, Bremen, Würzburg and Hungary—came closest to realizing the conditions for that vision. Nevertheless, the chance was missed. The workers’ movements met far fiercer ruling-class resistance, military, political and ideological, than most of their leaders had anticipated; and by the 1920s they confronted far more complex capitalist economic and social structures than had existed in the 1870s, buttressed by the mass media and advertising, and supported by intermediate class layers. Meanwhile, deeper structural changes were undermining the assumptions on which the original model of community regulation had been built.

That model presumed convergence—of technical forms of labour and of social values. But the actual trajectory was one of divergence.

¹⁴ See Bruno Leipold, *Citizen Marx: Republicanism and the Formation of Karl Marx’s Social and Political Thought*, Princeton 2024.

Industrial development did not homogenize the working class into a mass of interchangeable labourers. Instead, it generated increasingly complex and layered forms of production, dependent on specialized and often mutually unintelligible knowledges—fragmenting the material basis for democratic economic coordination. At the same time, new social struggles—feminist, anti-racist, anti-colonial, nationalist and environmentalist—not only identified additional forms of domination, but advanced competing claims about how to define what mattered—autonomy, recognition, security, dignity, care, sustainability—and how to prioritize across these values. Socialists’ failures to grasp these tectonic shifts—and the idea that they would know what to do when the time came—proved a strategic disaster.

2. HARD LESSONS

By 1921, with the Red Army’s civil-war victory, it was becoming clear that the Bolsheviks alone had succeeded; the revolutionary forces elsewhere were being crushed. But the Russian economy was in complete disarray. Workers had abandoned the factories; peasants, freed at last from their landlords’ predation, no longer supplied the cities with sufficient food. In these conditions, with the centralization of the party-state apparatus hardening under Stalin, the infant Soviet Union began constructing the first centrally planned industrial society. Needless to say, the state-socialist ‘command economy’ was based on the repression of differing viewpoints, not the community-led democracy envisaged from More to Marx. But the Soviet order was still in a fundamental sense an effort to introduce a community-regulated form of production, replacing market allocation with centrally set Five-Year Plans. However, though not driven by profit, it remained narrowly focused, for the most part, on maximizing output.

Though the Soviet command economy went deeply awry, it made certain important discoveries. Above all, it pioneered the use of coordinated investment as a driver of economic development, freed from the profit imperative by soft-budget constraints. That strategy would have a major influence on economic policy in Japan, Korea, Taiwan and the PRC, down to the present; it explains the emergence of China’s BYDs as today’s cutting-edge electric vehicles. In the 1920s, Soviet economists at Gosplan and other bodies set about developing an *ex-ante* plan, based

on the prior allocation of inflows to match desired outflows. They had to grapple with the daunting task of quantifying millions of inputs, multiple types of material, different generations of machinery and dispersed labour resources, in order to bring them into equilibrium across the whole economy. With the launch of the first Five-Year Plan in 1928, the Soviet Union lurched into a more haphazard but undoubtedly more dynamic form of coordination, on top of this central-allocation model.

Indeed, the Five-Year Plans are best understood as motivational projects, rather than plans as such. Their goals became increasingly extreme, producing a set of perverse results: extensive waste, shoddy products, Soviet managers hoarding or bartering hard-to-get inputs, in an attempt to meet impossible output quotas.¹⁵ But these absurdities were nevertheless outweighed by the sheer scale of the growth in productive capacity, with end results far beyond what anyone could have predicted. This was in large part achieved by pouring the rural labour force into rapidly built factories, following the notoriously brutal collectivization of agriculture. From 1932, it was also fuelled by a radical monetary innovation. The national currency, the rouble, was administratively divided into two distinct circuits of value with the state bank, Gosbank, as gatekeeper. The cash rouble, for salaries and consumption, entered circulation when workers received their wages and exited again when they purchased goods from stores. The non-cash rouble was used exclusively within the planning and production system, serving as an accounting mechanism for all state-enterprise transactions—tokens of permission within the planned economy's administrative logic. Non-cash roubles were created through credit authorizations and deleted when plans were fulfilled or adjusted.¹⁶ Without the extraordinary industrial dynamism this system produced, it would have been impossible for the Soviet Union to defeat Nazi Germany.

Stalinism was a disaster from a moral, social and political perspective—and, in the long run, from an economic perspective, too. But in the short to medium term, its developmental achievements are undeniable. After the devastation of the Second World War, Soviet growth resumed for

¹⁵ On incentive problems, see János Kornai, *Economics of Shortage*, Amsterdam 1980; Alec Nove, *The Economics of Feasible Socialism Revisited*, London 1991.

¹⁶ See Paul Gregory, *The Political Economy of Stalinism*, Cambridge 2004; Michael Ellman, *Socialist Planning*, Cambridge 2014 [1979], third edition; Joseph Berliner, *Factory and Manager in the USSR*, Cambridge MA 1957.

a further two decades; the USSR's innovations included the hydrogen bomb and putting the first man into space. Its expansionary dynamic only faltered in the mid-1960s as the supply of labour from the countryside finally ran out.¹⁷ Despite all its problems, the Soviet system achieved a basic level of economic security for its population, with strong job protections, higher-grade employment for women, public childcare and a cradle-to-grave welfare state. But once it began to run short of resources, the heavily centralized economy proved unable to re-tool itself or to implement innovations such as the linear-programming algorithm developed by the Soviet economist Kantorovich in 1938. As growth slowed, the contradictions of the model became increasingly obvious.

Long-term structural problems—chronic stagnation, productivity decline, falling oil revenues—were already constraining the Soviet economy. But the proximate cause of collapse was the breakdown of the internal separation between the cash and non-cash monetary circuits, as enterprise reforms in the late 1980s expanded managerial discretion and allowed firms to engage in market-oriented transactions, undermining Gosbank's monopoly on financial coordination. Firms used cash earnings to pay bonuses, procure scarce inputs, or build parallel distribution channels. As financial discipline broke down, inter-enterprise arrears ballooned, non-cash payments failed to clear and material flows became untrackable. The system's core function—allocating resources through plan-validated ledger entries—was no longer operable.¹⁸

In practice, then, the centralized plan—focused above all on output growth—came to stand in for the multi-criterial community-regulated

¹⁷ In 1950 the Soviet population was still 50 per cent rural; the proportion fell to 33 per cent in 1960 and 23 per cent in 1970.

¹⁸ China's domestic monetary system under Mao reflected a similar logic of separation to that of the USSR. Chinese enterprises operated within a cashless accounting system, transacting through bank-mediated transfers approved by the People's Bank of China, while households received wages and made purchases in cash renminbi. Firms could not access cash directly, and all inter-enterprise payments required plan authorization. In the 1980s, as reforms advanced, a dual-track pricing system emerged, allowing goods to circulate at both plan prices and market prices, effectively creating parallel circuits within a single currency. These arrangements preserved planning authority while managing scarcity and enabling marginal liberalization, allowing a very different outcome to that of the USSR. See Barry Naughton, *The Chinese Economy: Adaptation and Growth*, Cambridge MA 2007; and Naughton, *Growing Out of the Plan: Chinese Economic Reform 1978–1993*, Cambridge 1995.

economy for which the mass socialist parties had been fighting, attempting to manage a level of production far more complex than the 1840s communists could have imagined. It may be helpful here to unpack the theory of the plan—and its limitations—before going on to examine the alternative approaches that were being debated in Vienna in the 1920s, just as Gosplan was starting work in Moscow.

3. THE THEORY OF THE PLAN

The classic case for *ex-ante* planning foregrounds the conscious organization of production to meet collective needs, instead of letting market prices adjust supply and demand after the fact, generating chaotic booms and busts, waste and inefficiencies.¹⁹ As noted, the logic of *ex-ante* planning proved especially compelling for large-scale transformations that require coherent, long-term coordination—industrial development, but also any serious move to replace fossil fuels with renewable energy, or to eliminate plastics. But the argument for *ex-ante* planning was also tied to an account of social justice. Under capitalism, income distribution becomes a terrain of struggle between labour and capital, shaping the choice of production techniques at every level.²⁰ *Pace* the mainstream economics textbooks, capitalists do not merely organize production around economic efficiency; they structure it to sustain managerial control, often at the expense of efficiency, as well as broader social needs.²¹ From the days of Bebel and Kautsky onward, socialists argued that a rationally planned economy would eliminate these politically motivated distortions. It would be based on an objective assessment of social needs, productive capacities and the labour time required to produce every good and service, with precise accounting that would make

¹⁹ For a strong statement of the case, see Ernest Mandel, 'In Defence of Socialist Planning', *NLR* 1/159, Sept–Oct 1986.

²⁰ See Karl Marx, *Capital: Volume I*, London 1992, Chap. 10, 'The Working Day'. Piero Sraffa was one of the few twentieth-century economists to take seriously the notion that the labour share of income is a distributional variable that shapes choice of technique rather than simply resulting from it. See Piero Sraffa, *Production of Commodities by Means of Commodities*, Cambridge 1960, especially Parts I and III.

²¹ See Harry Braverman, *Labour and Monopoly Capital: The Degradation of Work in the Twentieth Century*, New York 1974; Stephen Marglin, 'What Do Bosses Do? The Origins and Functions of Hierarchy in Capitalist Production', *Review of Radical Political Economics*, vol. 6, no. 2, October 1974; and Matt Vidal, *Management Divided: Contradictions of Labour Management*, Oxford 2022.

exploitation impossible. From this perspective, the political dimension of production disappears along with class conflict, so planning becomes a purely technical process.

From the 1870s, socialists mainly looked to labour-time accounting to operationalize this vision. Drawing on Marx's scattered suggestions that a socialist economy would still require calculations of socially necessary labour time to coordinate production, this approach treats labour as the fundamental unit of value.²² In theory, all inputs—raw materials, fixed capital and labour itself—can be converted into labour-time equivalents, allowing socialist planners to determine precisely how the workforce should be allocated in response to shifting social needs and technological developments.²³ On this basis, labour would be slotted into all branches of production in advance, without any market exchange—and hence without the formation of 'values', understood as ratios of market exchange between commodities. This framework also claimed to resolve the problem of exploitation by ensuring that each contributes 'according to their ability'—and can understand their contribution transparently, measured in socially determined labour units—whether they then access consumption goods and services according to 'their contribution' or 'their need'.

Soviet economists soon discovered the limits of labour-time accounting. Reducing everything to labour hours oversimplifies key distinctions between different types of work and resources. A more practical approach emerged: measuring each input in its own natural units—tons of steel, kilowatt-hours of electricity, or hours of engineering versus care labour. Input-output models, pioneered by Wassily Leontief and operationalized by Leonid Kantorovich through the introduction of linear-programming techniques, mapped production through detailed matrices that took as parameters the 'recipes' for each good and service, showing precisely which inputs were required to produce each output.

²² See Karl Marx, *Critique of the Gotha Programme* [1875], in *The First International and After: Political Writings*, London and New York 2010. For analysis of Marx's remarks on the economic organization of socialism, see Peter Hudis, *Marx's Concept of the Alternative to Capitalism*, Leiden 2012.

²³ This approach appears in the Engels, Bebel, and Bukharin and Preobrazhensky texts previously discussed. It also underpins councilist perspectives, such as those presented by the Group of International Communists in their *Fundamental Principles of Communist Production and Distribution*, London 1990 [1930].

Input-output planning is computationally intensive but highly adaptable; there are good reasons to think it will be useful in a world facing tight ecological constraints.²⁴

However, *ex-ante* planning models face core problems. In practical terms, the first of these is the generation of a coherent plan. Under capitalism, firms are incentivized to discover the most efficient methods for producing goods and services. Planned economies, by contrast, must draft the ‘recipes’ of production administratively. Engels and Bebel claimed these could be ‘easily determined’, and Marxists generally followed this assumption. But the Soviet experience soon showed that things were not so easy. Firms producing the same goods and services often operated different combinations of machinery, built at different times, maintained in different ways and upgraded to different degrees, resulting in different operational norms—the ‘vintage problem’.²⁵ As a result, producers might reasonably disagree about the optimal production method for their industry and their real resource needs might vary quite substantially. Divergences were compounded by differences in geography, custom, access to infrastructure and local resource availability, making it hard to impose uniform benchmarks without distorting production.

²⁴ The input-output approach became the basis of Paul Cockshott and Allin Cottrell’s *Towards a New Socialism*, Nottingham 1993, which provided the foundations for Phillips and Rozworski’s *The People’s Republic of Walmart*. On a possible prehistory of input-output planning, see A. A. Belykh, ‘A. A. Bogdanov’s Theory of Equilibrium and the Economic Discussions of the 1920s’, *Soviet Studies*, vol. 42, no. 3, July 1990. Recent ecosocialist studies in this vein include the strongly pro-nuclear contribution by Paul Cockshott, Allin Cottrell and Philipp Dapprich, *Economic Planning in an Age of Climate Crisis*, 2022; and, strongly anti-nuclear, Troy Vettease and Drew Pendergrass, *Half-Earth Socialism*, London and New York 2022. For an approach closer to my own, see Cédric Durand and Razmig Keucheyan, *Comment bifurquer: Les principes de la planification écologique*, Paris 2024.

²⁵ The vintage problem poses difficulties not only for socialist planning but also for neoclassical economics. General equilibrium models typically rely on assumptions of homogeneous technologies and well-defined aggregate production functions—assumptions that break down in the face of technological heterogeneity across firms. Although he does not use the term, the vintage problem is central to Friedrich Hayek’s critique of both planning and equilibrium models in ‘The Use of Knowledge in Society’, *American Economic Review*, vol. 35, no. 4, September 1945. On vintages, see Robert Solow, ‘Investment and Technical Progress’, in *Mathematical Methods in the Social Sciences*, Kenneth Arrow *et al.*, eds, Stanford 1960. For a Marxist-inflected account, see Anwar Shaikh’s discussion of regulating capitals in *Capitalism: Competition, Conflict, Crises*.

A second set of practical problems concerned implementation. *Ex-ante* planning theory assumed that a well-constructed plan would in itself ensure smooth execution. Yet disruptions—delayed inputs, logistical failures, shifts in demand—often required *ex-post* adjustments which the plan struggled to accommodate, especially when it was tightly specified. Market economies, despite their inefficiencies, incorporate built-in feedback loops that allow continuous adaptation. They create space for experimentation and innovation, enabling firms to test new methods, respond to failure and evolve—or die—in ways that central plans do not easily permit.

But the planning model also suffered from a deeper theoretical limitation: it remained efficiency-first. Both labour-time accounting and input-output models reduce economic coordination to a technical exercise, oriented towards the optimization of input use—whether measured in hours worked or heterogeneous resources—to maximize desired output. Planning, in this view, becomes a single-criterion optimization problem: production targets are defined, inputs are calculated, and an algorithm generates a comprehensive map of resource flows across the economy. Other social goals—such as limiting carbon emissions or improving work quality—can be incorporated into these frameworks, but only as external constraints, not as core objectives. Even when multiple goals are acknowledged, they are not treated as independent criteria worth pursuing for their own sake. Instead, the system seeks the ‘least-cost’ way to meet its primary objective—usually maximum output—while staying within specified limits. The result is a framework that retains the efficiency-first logic that a multi-criterial economy would try to transcend.

Adherence to a ‘single-objective function’ logic marked a fundamental limit of traditional planning approaches. While efficiency remains important—wastefulness is not a goal—a genuinely multi-criterial economy, capable of meeting the needs of all and underwriting the free development of each, would need to incorporate a broader array of core priorities, worth pursuing for their own sake. In addition to meeting basic needs, these could include sustainability—respecting ecological limits, promoting restoration, for example; work quality—fostering meaningful rather than degrading labour; experimental research and education; cultural production; community cohesion or autonomy; aesthetic goals. The shift required is not merely from a labour theory of value to a broader input-output framework, but from a monistic theory

of value to a pluralistic alternative—and, as a result, from a technical to a political understanding of economic coordination.

This reorientation has far-reaching implications. In most planning models, political contestation enters—if at all—only at the stage of determining social needs, as a basis for deciding what should be produced. Once these have been established, the rest of the plan is treated as a technical problem: of calculating which inputs are required, in what proportions and using which methods, to produce those outputs. Democracy enters planning at this point only in a narrow, supervisory and administrative role: workers may be brought in to make sure that everyone is contributing fairly—a safeguard against exploitation—and to ensure that the machinery of administration does not fall under the control of a technical elite—a safeguard against domination. But the plan itself is assumed to be neutral. This manner of proceeding assumes that each good has a single optimal ‘recipe’—an assumption undermined not only by the practicalities of the ‘vintage problem’, but more fundamentally by the fact that different production techniques embody different ethical and political values. Even for a single good or service, multiple production methods will always be possible, depending on whether the priorities are efficiency, quality, sustainability, good working conditions or some other combination of values.

A multi-criterial economy would treat those choices as ethical and political, with different production methods reflecting different ways of balancing society’s multiple goals. The same openness to adjudicated multiplicity would need to extend across the economy as a whole, creating a system in which coordination is not about discovering a singular optimal path but navigating trade-offs between competing priorities. The process of aggregating these choices—determining how to allocate labour, materials and investment across society’s many goals—would no longer be reducible to a fixed algorithm but would remain a site of democratic contention, shifting with evolving social and political priorities.

4. VALUES AND VALUE

A theory of value that seeks to explain economic worth through a single metric—whether utility or labour time—cannot capture the complexity of a system governed by competing priorities. What we need instead is a theory of *values*: one that recognizes economic life as structured by

multiple aims.²⁶ Marx's work contains a tension that speaks directly to the question of how economic coordination might be organized in this way. The early chapters of *Capital: Volume One* align closely with the logic of *ex-ante* planning described above. Marx criticizes the way markets validate labour as socially useful only *ex post*. In a capitalist economy, he explains, private producers make independent decisions about what and how to produce, with no guarantee that their labours will be recognized as socially necessary. Only the act of exchange—if and when their goods or services are sold—affirms their private labour as having social value. This system of *ex-post* social validation generates considerable uncertainty, and would do so even in the absence of class divisions. Producers cannot know in advance whether their efforts will count as meaningful, and hence rewardable, contributions. Their labour may be rendered socially useless by overproduction, unexpected shifts in demand or technological changes that cannot be reliably anticipated.²⁷

The market's retrospective validation process also entrenches a system in which labour is disconnected from any conscious, collective determination of what and how to produce. In brief references to the economic organization of socialism, Marx contrasted this aspect of the *ex-post* validation system to that of *ex-ante* coordination, where labour is allocated according to a collective plan.²⁸ Even if the products of their labour ultimately go unused, the producers' work will still count as socially valid, since it has been undertaken according to agreed-upon priorities. The loss would be socialized rather than individualized. Marx's thinking here

²⁶ In focusing narrowly on how value is determined under capitalism, value-form theory goes astray. It cannot fulfil the promise implicit in the project that Marx and Engels set out to achieve: the development of a framework that not only explains capitalist exchange but also gestures towards the outlines of a post-capitalist economy—one that lacks a single standard of value yet retains coherence. See the chapter on distribution in Engels's *Anti-Dühring*, likely written at least in part by, or in collaboration with, Marx. For representative accounts of value-form theory, see Hans-Georg Backhaus, 'Zur Dialektik der Wertform' in Alfred Schmidt, ed., *Beiträge zur Marxistischen Erkenntnistheorie*, Frankfurt 1969; in English: 'On the Dialectics of the Value-Form', *Thesis Eleven*, vol. 1, no. 1, February 1980; Helmut Reichelt, 'Social Reality as Appearance' [1970], in Werner Bonefeld and Kosmas Psychopedis, eds, *Human Dignity: Social Autonomy and the Critique of Capitalism*, London 2005; and Michael Heinrich, *Die Wissenschaft vom Wert*, Münster 1999 [1991], and *An Introduction to the Three Volumes of Karl Marx's Capital*, New York 2012 [2004].

²⁷ Marx, *Capital: Volume I*, pp. 129–30, 165, 200–2.

²⁸ Marx, *Capital: Vol. I*, pp. 169–72.

aligns with traditional planning models that emphasized systematic accounting—whether through labour-time measures or input-output matrices—as an antidote to the market’s chaotic *ex-post* procedure.

However, there is another strand of thought in *Capital: Volume One* that moves towards a deeper critique of capitalist production. In his discussion of the ‘general law of capitalist accumulation’, Marx described how capitalist firms, driven to raise productivity by the competitive pursuit of profit, depleted natural resources, reduced workers to fragments of men and compromised product quality—all because production was subordinated to the imperative of maximizing profit, which was achieved by maximizing economic efficiency.²⁹ This suggests that socialism cannot simply be about replacing market coordination with planned coordination, while retaining efficiency-first as a core logic. A socialist alternative must also transform the values embedded in production itself. Marx’s work thus implies not just a ‘theory of value’, but a broader theory of *values*, in which economic coordination is structured around multiple priorities.

Twenty-first-century Marxists and democratic socialists have drawn on this strand in Marx’s work to criticize capitalism for systematically excluding crucial values—care, health, sustainability, work quality, social cohesion. They rightly tie this to the exclusion of the vast majority of humanity from participation in economic decision-making.³⁰ If those masses were included, there is no chance that they would put capitalist profitability above every other goal. The answer therefore appears to be straightforward: extend decision-making power to those previously excluded, integrate neglected values into planning models, and construct an economy that better reflects the full range of human aspirations. But this solution risks moving too swiftly over the real material, cultural and political differences at stake. It typically depends on what might be called an *additive* theory of value, which assumes that integrating excluded values is primarily a matter of expanding informational inputs—learning more about people’s needs, to refine the planning

²⁹ Marx, *Capital: Vol. I*, pp. 637–8, 798–9. Karl Polanyi develops this thread in *The Great Transformation*, New York 1944.

³⁰ Within Marxism, this view seems to arise most directly from Engels, who held that the purpose of the state is to repress and exclude. It therefore follows that, ‘as soon as there is no longer any social class to be held in subjection’ and hence ‘class rule’ ends, ‘nothing more remains to be repressed, and a special repressive force, a state, is no longer necessary’: Engels, *Anti-Dühring*, p. 340.

process.³¹ On this view, planning remains a largely technical exercise of converging on the best solution, only now it is achieved through discussion rather than mathematical calculation.

The history of socialist thought provides many examples of this ‘additive’ approach. Consider the 1890s debate between Edward Bellamy and William Morris over the nature of a future society. In *Looking Backward* (1888), the American novelist envisaged a future where private ownership has been abolished and production reorganized to achieve unprecedented levels of efficiency, unlocking the full potential of the economy to produce abundance and a life of leisure.³² The English poet and artist strongly rejected this narrow, efficiency-first vision in his utopian response, *News from Nowhere*. Morris offered an alternative vision of socialism, organized around a broader set of human needs, whose goal was not simply more abundance and less toil, but meaningful, fulfilling work producing beautiful goods.³³

Yet Morris’s critique illustrates precisely the limitation of the additive approach. Although he sought to incorporate additional values, he did not address the problems this would entail for the economic decision-making process. The only concrete decision-making structure discussed in *News from Nowhere* is the Mote, an informal meeting at which members of a local community regularly gather to discuss such issues as, in Morris’s telling, whether to build a new bridge now or wait a little longer. These decisions appear modest in scope and largely uncontentious—matters of common sense rather than political disagreement.³⁴ In the next generation, Morris would be a major influence on the left-Fabian G. D. H. Cole, whose theory of guild socialism developed Morris’s intuitions into a much more elaborate vision of a society organized around multiple values—but again, in an additive sense. In Cole’s *Guild Socialism Restated* (1920), people are organized in terms of three overlapping

³¹ Non-Marxist socialists have also developed accounts of the epistemic value of democracy. See, for example, W. E. B. Du Bois, *Darkwater*, New York 1920, and John Dewey, *The Public and Its Problems*, New York 1927, which both argue that society achieves greater clarity through the inclusion of previously excluded voices and can chart a more just and democratic path forward on that basis.

³² Edward Bellamy, *Looking Backward: 2000–1887*, Boston 1888.

³³ William Morris, *News from Nowhere*, Cambridge 1995 [1890]. See also Morris, ‘Useful Work and Useless Toil’, in *News from Nowhere and Other Writings*, London 1993, as well as his many other texts on socialism.

³⁴ Morris, *News from Nowhere*, pp. 90–2.

roles: as workers, consumers and citizens. These identities correspond to three institutional spheres, each with its own representative bodies, which come together to negotiate prices and coordinate production. Karl Polanyi, a close associate of Cole in the 1930s, developed what might be seen as his own variant of guild socialism.³⁵ Yet for all their architectural richness, these models share a core assumption that, once the full range of voices and perspectives is included, consensus will not be hard to reach. Conflict is presumed to fade away, without needing to be institutionalized and navigated.

This additive theory of value persists in more recent socialist traditions as well.³⁶ We find it wherever thinkers seem to assume that including more people, perspectives, interests and values in economic decision-making will naturally lead to greater social harmony. On this view, economic antagonisms under capitalism arise primarily from domination—those with power impose decisions on those without. Exclusion of people and values is seen as the root cause of social conflict. The implication is that, after capitalism, politics will wither away as consensus will take hold. But this framework systematically avoids the deeper challenge: incorporating multiple values requires new procedures for managing real differences over trade-offs.³⁷ Stalinism understood these clashes of interest well and dealt with them by brute force, waging economic war on the peasantry to impose the values of the cities and the industrializing Soviet state. If

³⁵ Karl Polanyi, 'Socialist Accounting', *Theory and Society*, vol. 45, no. 5, October 2016. For two recent but contrasting perspectives on guild socialism, see Joseph Persky and Kirsten Madden, 'The Economic Content of G. D. H. Cole's Guild Socialism', *European Journal of the History of Economic Thought*, vol. 26, no. 3, June 2019, and Geoffrey Hodgson, 'The Institutional Impossibility of Guild Socialism', *Cambridge Journal of Economics*, vol. 47, no. 1, January 2023.

³⁶ For representative examples of the 'additive' approach in recent socialist thought, see Michael Albert, *Parecon: Life After Capitalism*, London and New York 2003; Paul Burkett, 'Marx's Vision of Sustainable Human Development', *Monthly Review*, vol. 57, no. 5, October 2005; Nelson, *Beyond Money*; Sutterlütty and Meretz, *Make Capitalism History*.

³⁷ Even Pat Devine's *Democracy and Economic Planning*, whose concept of 'negotiated coordination' is crucial to the model I will go on to develop in Part Two, adheres to a largely additive theory of value, assuming that participants in a socialist economy will, through deliberation, tend towards compromise and consensus. There is space for political conflict only when negotiation breaks down—and with it, the ability to coordinate production in the affected sectors. Economic activity cannot resume until the conflict is resolved and negotiated coordination is re-established. This interruption is understood to generate the social pressure necessary to restore compromise.

differences are instead to be dealt with democratically, adapting the ideals of the older community-regulated visions of socialism to a far more complex socio-economic order, then that political process needs to be foregrounded—it cannot simply be left to the future’s cooks. Capitalism suppresses value conflicts in production by enforcing its efficiency-first logic. Incorporating a plurality of production values will mean transforming the process of choosing among competing economic priorities, not simply expanding informational inputs.

5. NEURATH’S BREAKTHROUGH

One of the few interwar thinkers to grasp the challenge that multicriterial decision-making would pose to traditional planning models was the Viennese polymath, Otto Neurath. Tall and outspoken, Neurath was a commanding figure in the city’s pre-1934 intellectual life.³⁸ Trained in maths, physics and economic history in Vienna and Berlin, he was also schooled in the practicalities of wartime economic improvisation, which he observed close up during the Balkan conflicts of 1912–13, before running logistics for the Austro-Hungarian Army on the Galician front in the First World War. There he witnessed the ‘money-oriented trade economy’ start to give way to a centralized ‘administrative economy’, bringing improved life conditions but also a regrettable uniformity:

If the administrative economy . . . does actually make better use of available effort, abolishing unemployment, making crises impossible and diminishing mass poverty, it will doubtless take some time before an incisive criticism is raised against the uniformity. But the wish for co-existence of different forms of life and organization would then show itself more forcefully perhaps than ever before, and it might not be impossible that a multiplicity of forms of life adapted to the multiplicity of men themselves should become a mark of the future next-but-one.³⁹

Radicalized by the collapse of the Habsburg, Hohenzollern and Romanov empires, Neurath was among those trying to build a new society amid the rubble, leading moves for the socialization of the economy in the run-up to the short-lived Bavarian Soviet Republic of 1919. After it was

³⁸ For the intellectual context of Otto Neurath (1882–1945), see Michael Turk, *Otto Neurath and the History of Economics*, Abingdon 2018.

³⁹ Otto Neurath, ‘The Converse Taylor System’ [1917], in Marie Neurath and Robert Cohen, eds, *Empiricism and Sociology*, Dordrecht 1973, pp. 132–3.

crushed he was deported back to Austria, where he played a key part in urban planning and popular education in Red Vienna—as well as stimulating Ludwig von Mises to launch the Socialist Calculation Debate.⁴⁰

Neurath rejected the notion that a socialist economy should optimize for a single goal—whether maximizing output or minimizing labour time—and insisted that taking multiple, often conflicting values seriously required rethinking economic coordination itself. Planning could no longer be understood as a technical process for selecting the best solution. It had to be re-conceived as a democratic procedure for navigating among divergent priorities. In 1920s Vienna, for instance, a municipal-planning body tasked with solving a housing shortage might face competing objectives: minimize costs or maximize liveability. No technical model could resolve the trade-off between plans for building as many units as possible, quickly and cheaply, as opposed to foregrounding green space, light and sanitation, albeit at a slower pace and higher cost. The choice was not a matter of input-output optimization; it was a political question about which values to choose and why.⁴¹

⁴⁰ In 1920, Neurath would reflect on the defeat of the Bavarian Soviet Republic: ‘Civil war is raging in Germany. Famine, Disease and Murder are at work, the Horsemen of the Apocalypse. How could they be resisted? Only by our will and knowledge. This misery has befallen us not least because we lacked clear aims. Marxists killed playful utopianism, thus saving the unity of the Party and “scientific rigour”, but also paralysing the resolve to think up new forms. The doctrine of historical necessity became quietism for many; what Marx said about active engagement in reconstruction was forgotten . . . The proletariat and their allies found themselves with much power in the November Revolution. What was lacking, however, was an idea of the economic future that could have guided the will’: ‘A System of Socialization’, in Thomas Uebel and Robert Cohen, eds, *Economic Writings, Selections 1904–1945*, Heidelberg 2004, pp. 348–9.

⁴¹ For Neurath’s key contributions on economic planning, see especially ‘Through War Economy to Economy in Kind’ and ‘International Planning for Freedom’ in Neurath, *Empiricism and Sociology*; and ‘Economic Plan and Calculation in Kind’ and ‘Socialist Utility Calculation and Capitalist Profit Calculation’ in Neurath, *Economic Writings*. Neurath’s work has often been misinterpreted by those who fail to read his writings on economic planning alongside his philosophy of science. For efforts to correct this, see John O’Neill’s contributions in ‘Who Won the Socialist Calculation Debate?’, *History of Political Thought*, vol. 17, no. 3, Autumn 1996; ‘Socialism, Associations and the Market’, *Economy and Society*, vol. 32, no. 2, 2003; ‘Pluralism and Economic Institutions’, in *Otto Neurath’s Economics in Context*, Nemeth et al., eds, Heidelberg 2007; and Thomas Uebel, ‘Calculation in Kind and Substantive Rationality: Neurath, Weber, Kapp’, *History of Political Economy*, vol. 50, no. 2, June 2018. My reading of Neurath and the Socialist Calculation Debate is deeply informed by these texts and by conversations with both O’Neill and Uebel.

As he pointed out in *Der Kampf*, theoretical journal of the Austrian Social Democrats, the socialist economy was concerned with ‘the interest of the social whole’—‘the welfare of all its members with regard to housing, food, clothing, health, entertainment, etc.’:

Right at the start it must be determined what this is, ‘the interest of the social whole’. Does it include the prevention of the premature exhaustion of the coal mines or of the karstification of the mountains or, for instance, of the health and strength of the next generation? Once that has been determined at least in outline, it makes sense to ask how the existing raw materials, machines, labour power, etc., are best used. One has to find the best way to achieve a non-wasteful exploitation of the coal mines, to ensure the health of the next generation.⁴²

Under capitalism, Neurath argued, such trade-offs are obscured: questions about the kinds of work, environment or communities we want are framed as if they had purely technical answers, creating a false sense of clarity about the route ahead. Once a plurality of values is acknowledged, planning no longer delivers a single optimal path for the economy. Choice across alternatives becomes essential.

Neurath recognized that many would find this conclusion difficult to accept. A dominant assumption in modern scientific thinking—including socialist thinking—is that uncertainty can always be reduced with better information: that, given enough data, all options can be ranked. Neurath called this belief pseudo-rationalism: the tendency to begin with the assumption that a single best solution to any problem can always be uncovered, and then to rationalize one’s choice, after the fact, as having been the best.⁴³ Pseudo-rationalists construct myths of necessity rather than engaging in true forms of reasoning. True rationalism, Neurath argued, begins by acknowledging that a fundamental uncertainty cannot be eliminated. There are two sources of such uncertainty. First, we face uncertainty about the facts: we do not fully understand the

⁴² Otto Neurath, ‘Sozialistische Nützlichkeitsrechnung und kapitalistische Reingewinnrechnung’, *Der Kampf*, 18, 1925; trans. ‘Socialist Utility Calculation and Capitalist Profit Calculation’, in *Economic Writings*, pp. 466–72.

⁴³ See Otto Neurath, *Philosophical Papers 1913–1946*, Robert Cohen and Marie Neurath, eds, Dordrecht 1983, especially ‘The Lost Wanderers of Descartes and the Auxiliary Motive’ and ‘The Orchestration of the Sciences by the Encyclopedism of Logical Empiricism’. See also ‘The Problem of the Pleasure Maximum’ [1912], in *Empiricism and Sociology*, pp. 113–22.

present and cannot reliably predict the future. Second, we face uncertainty about our values: even well-defined values do not have fixed or stable trade-off relationships, and our priorities will tend to change over time. These uncertainties mean that economic planning cannot be fully predictive or entirely technical. Instead, 'we must in principle give several answers, since because of our inadequate insight into the presuppositions of events, several possibilities present themselves to us'.⁴⁴

For Neurath, recognizing this dual uncertainty leads to a rejection of money as an instrument of economic coordination. Money, he argued, is a pseudo-rational device: it creates the illusion that all outcomes can be rendered commensurate through a single unit of account, masking the presence of genuine uncertainty about both facts and values. Society experiences the failure of this illusion in violent ways—through financial crises—and in more mundane ones, as people routinely make trade-offs between, say, higher incomes and better-quality work, or between economic growth and environmental sustainability, without ever confronting these as explicit choices. To overcome this irrational form of rationality, Neurath argued that a socialist economy should adopt 'calculation in kind'. This would involve evaluating economic plans both quantitatively and qualitatively, but without measuring everything in terms of a single unit. Calculation in kind would also acknowledge that experts have only a limited ability to make our choices for us on technical grounds. Given fundamental uncertainties about both facts and values, experts cannot uncover strictly optimal outcomes; at best, they can help identify a range of such options from which choices can be made. Recognizing that uncertainty limits our ability to rank our options is not a failure of planning, Neurath insisted, but a necessary precondition for it in a democratic society. In the presence of partial-order problems, democracy becomes not just desirable but essential.

⁴⁴ Otto Neurath, 'Utopia as a Social Engineer's Construction' [1919], in *Empiricism and Sociology*. In his earlier work, Neurath framed uncertainty as an epistemic problem: we lack the knowledge or techniques to measure or aggregate competing values, as in his critique of the 'pleasure maximum'. In later writings, however, he appears to move towards an ontological view—that values may be irreducibly plural, or that what we call 'happiness' is not a single object, but rather a plurality of objects lacking a common unit. For Neurath, this insight applied equally to individual and social life. Economists have tried to evade the problem by converting uncertainty into calculable risk, assigning probabilities to unknown futures. But, like Neurath, Frank Knight (*Risk, Uncertainty and Profit*, Boston 1921) and Keynes (*The General Theory*, Chap. 12) recognized that true uncertainty resists such reduction.

Most accounts of economic planning assign a narrow role to democratic deliberation: it either confirms the option already identified by technical-optimization algorithms, or it enacts this optimization by way of a consensus-oriented discussion. On this view, deliberation adds little beyond allowing people to choose the 'best' option for themselves, while also introducing the risk that they might choose incorrectly. This is typically justified on two grounds: either because democracy is believed to improve technical decision-making by incorporating additional information—with inclusion leading to a more optimal result—or because it serves as a safeguard against the concentration of power: the republican concern with non-domination. But if uncertainty is structural, and applies not only to facts but to values, then the justification for democracy must be of a different kind. Neither technical reasoning nor community deliberation can be expected to converge on a single correct solution. What is needed, then, is not democracy as a source of better inputs or oversight, but democracy as a legitimate procedure for choosing among competing, incommensurable options. For Neurath, democracy meant creating a process through which people can collectively determine their future in a real way, rather than a matter of consultation or limited representation.

Neurath's concrete proposals for this involved a central office for calculation in kind, where experts, or 'social engineers', would develop comprehensive plans that dramatized the alternatives on which the public needed to decide. As he explained to the plenary session of the Munich Workers' Council in January 1919, the plans would highlight the real differences between the paths society could take:

From these economic plans the people's representatives should be able to infer what sort of qualitative shifts would occur if dams are built, if all manure pits are cemented and the like, within the framework of the total economy. The significance and realizability of each individual measure would become clear from looking at the whole.⁴⁵

One plan might prioritize environmental sustainability, another might emphasize reduced working hours, while a third could focus on improving work quality. Once these plans were presented, the public would

⁴⁵ Otto Neurath, 'Character and Course of Socialization' [1919], *Empiricism and Sociology*, p. 141. On the role of 'social engineers', see 'A System of Socialization' and 'Total Socialization' in Neurath, *Economic Writings*.

have to navigate perceived trade-offs through democratic deliberation, followed by a vote. Neurath envisaged this process using in-kind units instead of monetary prices, with the plans mapping the economy as a set of direct physical relationships—how much food sustains a population; how many theatre tickets might contribute to a richer life. This would involve novel forms of public education. Neurath duly developed the ISOTYPE system, a visual language to help a semi-numerate and even semi-literate population inform themselves about economic choices. His goal was not merely to inform but to empower, ensuring that economic coordination reflected collective aspirations rather than technocratic proclivities.⁴⁶

6. ON SOCIALIST CALCULATION

The question of whether it was possible to implement Neurath's vision of a moneyless economy became a central point of contention in the interwar Socialist Calculation Debate. The polemics, which drew in some of the era's leading economists—Ludwig von Mises, Friedrich Hayek, Oskar Lange, Abba Lerner—revolved around whether rational economic organization was possible without monetary price signals.⁴⁷ 'Since recent events [i.e., the First World War] have helped socialist parties to obtain power in Russia, Hungary, Germany and Austria, and thus made the execution of a socialist nationalization programme a topical issue, Marxist writers have themselves begun to deal more closely with the problems of the regulation of the socialist commonwealth', Mises noted, as he fired the first shot.⁴⁸ Mises and Hayek argued that central planners could never replicate the rationality embedded in capitalist markets. Without real prices determined by competitive producers seeking

⁴⁶ Otto Neurath, 'From Vienna Method to Isotype', *Empiricism and Sociology*, pp. 214–48. ISOTYPE was an acronym for International System of Typographic Picture Education. In the 1930s, Neurath travelled regularly to the Soviet Union to introduce the system there.

⁴⁷ For two introductions to the Socialist Calculation Debate, from opposed perspectives, see John O'Neill, *The Market: Ethics, Knowledge and Politics*, Abingdon 1998; Don Lavoie, *Rivalry and Central Planning: The Socialist Calculation Debate Reconsidered*, Cambridge 1985.

⁴⁸ Ludwig von Mises, 'Economic Calculation in the Socialist Commonwealth' [1920], in Friedrich von Hayek, ed., *Collectivist Economic Planning: Critical Studies on the Possibilities of Socialism*, London 1935.

maximal profits, economic participants would lack the information needed to make rational decisions about what to produce and how.⁴⁹

Mises emphasized that prices allow economic actors—above all, investors—not only to compare the cost of different production methods, but also to determine whether producing a given good is worthwhile at all. Only by comparing costs of inputs to the price of outputs could an actor judge whether anticipated rates of return justified investment. In this way, profitability served as both a signal of relative efficiency and a threshold of social viability. Hayek deepened this argument by insisting that price information alone was not enough. Rational production also depended on the local and specific knowledge held by producers, who understood which methods worked best with their equipment and conditions. Full-scale planning, both warned, would lead to major production inefficiencies. Instead of having more and working less, people would end up having less and working more.⁵⁰

As the debate developed, Lange and Lerner attempted to counter these criticisms by proposing a hybrid model which retained market-like mechanisms within a planned economy.⁵¹ The Lange–Lerner–Taylor model suggested that publicly managed firms could orient themselves towards administratively set prices, simulating market signals without needing profit-seeking private actors to discover prices through competitive trial and error. A central planner would act as a Walrasian auctioneer, announcing prices and then successively adjusting them to bring supply and demand into balance. If a set of prices resulted in overproduction of one type of input and underproduction of another, then the price of the former would be lowered and the latter raised. Other theorists proposed using non-price indices to achieve similar outcomes.⁵² Some, inspired at

⁴⁹ On Mises's and Hayek's arguments against socialist planning, see also Hayek's introductory and concluding essays in Hayek, *Collectivist Economic Planning*; and Mises, *Socialism: An Economic and Sociological Analysis*, Indianapolis 1981 [1922].

⁵⁰ Hayek anticipated the 'vintage problem': even among firms producing the same good, variations in infrastructure and inherited tools meant that no single production method could be assumed to be optimal. See 'The Use of Knowledge in Society'.

⁵¹ See the essays collected in Oskar Lange and Fred Taylor, *On the Economic Theory of Socialism*, Minneapolis 1938; and Abba Lerner, 'Economic Theory and Socialist Economy', *Review of Economic Studies*, vol. 2, no. 1, October 1934.

⁵² Geoffrey Heal, *The Theory of Economic Planning*, Amsterdam 1973. For a technical formulation, see Robin Hahnel, *Democratic Economic Planning*, Abingdon 2021.

least in part by Neurath's dream of an in-kind economy, experimented with input-output tables and linear programming to coordinate production without relying on prices at all.⁵³

Yet these approaches remained fixated on achieving what economists call static equilibrium—the momentary balance between supply and demand—and consequently struggled with the question of economic dynamism.⁵⁴ Lange and his followers demonstrated that, under certain idealized assumptions, a planned economy could indeed achieve static equilibrium without the profit-driven motivations of private capitalists. But as Hayek argued, markets are not merely allocation devices; they are adaptive, evolutionary systems. Genuine market prices enable rapid, decentralized responses to unforeseen shifts in input availability or consumer preferences, even when the underlying causes remain obscure. Real markets also function as arenas of experimentation, where firms can test alternative methods of production and new products, discovering what works through consumer evaluation. Markets, Hayek emphasized, are therefore places of dynamic discovery rather than mere mechanisms for equilibrium-seeking. No centralized planning system, he argued, could replicate this adaptive capacity.⁵⁵

The static equilibrium Lange sought to achieve, Hayek pointed out, was merely a theoretical fiction invented by neoclassical economists, resting on the unrealistic assumption that technologies, consumer preferences and economic conditions could be fully known in advance. In reality, economic life is constantly in motion, driven by producers testing different

⁵³ Allin Cottrell and Paul Cockshott, 'Calculation, Complexity and Planning: The Socialist Calculation Debate Once Again', *Review of Political Economy*, vol. 5, no. 1, 1993; and Paul Cockshott, 'Von Mises, Kantorovich and In-Natura Calculation', *Intervention: European Journal of Economics and Economic Policies*, vol. 7, no. 1, May 2010.

⁵⁴ See Fikret Adaman and Pat Devine, 'The Economic Calculation Debate: Lessons for Socialists', *Cambridge Journal of Economics*, vol. 20, no. 5, September 1996; and 'On the Economic Theory of Socialism', *NLR* 1/221, Jan–Feb 1997. As Adaman and Devine point out, Maurice Dobb was the only major participant on the socialist side of the 1930s Calculation Debate to emphasize the importance of dynamism. See Maurice Dobb, *On Economic Theory and Socialism*, Abingdon 1955.

⁵⁵ Friedrich Hayek, 'Economics and Knowledge', 'The Use of Knowledge in Society', 'The Meaning of Competition' and 'Socialist Calculation III: The Competitive "Solution"', in *Individualism and Economic Order*, Chicago 1948. For a Marxist conception of dynamic, real-world competition—similar to Hayek's, but more accurate—see Shaikh, *Capitalism: Competition, Conflict, Crises*.

strategies under conditions of fundamental uncertainty. The outcomes of these experiments—like the results of a race—can only be discovered after they have taken place. Lange and his followers had conceived of planning as an exercise in fine-tuning a fixed, predetermined structure, rather than as a dynamic engagement with uncertainty and flux.

Yet the deeper problem with the Lange–Lerner–Taylor model was not simply their neglect of economic dynamism; it was that they implicitly accepted the Austrian framework’s underlying assumptions. Instead of following Neurath in challenging the premise that economies must be structured around an efficiency-first logic, Lange and others conceded this terrain by seeking to demonstrate that socialist planning could match or approximate capitalist markets’ allocative efficiency. In accepting this single-criterion definition of economic rationality, they remained locked within a single-criterion optimization paradigm; non-efficiency goals, when considered at all, appeared as either afterthoughts or external constraints. Price-like models could only attempt to integrate these broader goals through *ad hoc* mechanisms, such as Pigouvian taxes—adjusting prices to reflect social and environmental costs and benefits.⁵⁶

These partial adjustments improved the inclusiveness of the planning process, but they were inadequate as foundations for a genuinely dynamic and adaptive multi-criterial economy. Such an economy would require institutions capable of continuously evolving, dynamically integrating multiple and often conflicting goals, and systematically encouraging technological innovation aimed explicitly at diverse and shifting social purposes. Neither Lange’s approach—nor any of its rival twentieth-century planning models—delivered this kind of economic coordination.

Meanwhile, Neurath’s project, which offered a glimpse of what a genuinely democratic and pluralistic economy might look like, remained more of a critical intervention than a practical alternative. He assumed that, in the near future, social engineers would be able to generate a range of planning options by applying multi-criterial evaluations to vast detailed input-output tables. In reality, the computational burden and interpretive demands of such a task—even for a single plan, let alone

⁵⁶ In 1936, Lange already noted that once profit-maximizing resistance was removed, externalities such as pollution could be priced directly into socialist markets.

many—rendered this vision technically unfeasible and institutionally underspecified.⁵⁷ What Neurath lacked—and what the broader socialist tradition never supplied—was a concrete model for turning these normative insights into a workable system, capable of integrating technological possibilities and evolving social values over time.

7. PLANS AND MARKETS

While the Socialist Calculation Debate played out primarily in theory, its practical counterpart emerged concretely after the War in the centrally planned economies of the Soviet Bloc. As we have seen, Soviet planners never attempted to realize Neurath's multi-dimensional democratic project; their economy was structured along highly centralized commandist lines. Nevertheless, like Neurath, they believed that economic life could be rationally coordinated without market price signals through comprehensive central plans. The subsequent history of the USSR revealed the limits of this mechanism; as an institutional foundation for non-market coordination, central planning ultimately failed. The problems predicted by Mises and Hayek—information bottlenecks, coordination failures, rigidities in adapting to change—became painfully familiar.

Yet it would be wrong to conclude that the entire Soviet economic experiment was a failure. The Austrian economists were correct about the static inefficiencies of non-market resource allocation, but they underestimated the dynamism that central planning could achieve. For a quarter of a century, between the 1930s and the 1950s, the USSR was the world's fastest-growing major economy. Its ambitious system of investment planning enabled rapid industrialization, extensive infrastructure development and impressive capacity expansion across interdependent sectors. In some industries, such as steel production, Soviet plants

⁵⁷ The issue may have been that Neurath did not fully recognize the degree of systematicity required to enact even incremental changes within a multi-dimensional planning framework. He did attempt to flesh out the institutional side of this vision in 'International Planning for Freedom', *Economic Writings*, but in a way that was less coherent than his earlier work on total socialization. On the possibility of a Neurathian 'mixed economy' with both market and in-kind dimensions, see Thomas Uebel, 'Calculation in Kind and Substantive Rationality'. The model that will be developed in Part Two of this study can be understood as a variant of this approach.

became among the world's most efficient due to their immense scale.⁵⁸ These accomplishments defied the Austrian framework, which largely ignored the potential advantages of economies of scale and coordinated investment. For a period, these gains outweighed the costs of static misallocation; if Soviet planners misallocated 5 per cent of output annually, but achieved overall growth rates of 10 per cent, desired outputs still increased rapidly in absolute terms. Yet as growth slowed, static inefficiencies became increasingly pronounced.⁵⁹

Market economies offer firms direct interaction with suppliers: if a supplier fails to meet their needs, firms seek alternative partners. Central planning eliminated this crucial flexibility. Firms had to accept whatever resources the central apparatus assigned, whether appropriate or not. As we have seen, managers duly improvised solutions, substituting lower-quality inputs or altering production processes on the fly. Such makeshift adjustments frequently produced defective goods, which failed to meet downstream requirements. Yet planned economies lacked effective mechanisms to filter out underperforming firms; even chronically inadequate suppliers continued receiving inputs, while other plants sat idle awaiting necessary parts, then rushed production to meet targets. These disruptions quickly propagated through rigidly structured supply chains. In response, firms hoarded whatever inputs they could secure—particularly labour—further exacerbating shortages. Such practices initiated a downward spiral, progressively distorting the planning data upon which resource allocation relied. Under these conditions, black markets emerged not as anomalies but as integral survival mechanisms, enabling firms to secure essential inputs and maintain baseline productivity. Without these informal channels, many industries would have struggled to function at all. Thus, the Soviet experience revealed

⁵⁸ See Robert Allen, *Farm to Factory: A Reinterpretation of the Soviet Industrial Revolution*, Princeton 2003. Allen argues that the USSR's rapid growth was due not only to state-led investment planning, but also to demographic change. Revolutionary upheaval helped jump-start the fertility transition; mass education—particularly among women—accelerated it. That lowered population growth, thereby boosting per capita income. See also Alec Nove, *An Economic History of the USSR, 1917–1992*, London 1993.

⁵⁹ Allen, *Farm to Factory*. Allen argues that the USSR's economic stagnation beginning in the mid-1960s was partly the result of poor investment decisions. Enormous resources were directed towards searching for new energy sources that delivered little, and towards retrofitting old plants rather than building newer, larger and more efficient ones. These choices significantly reduced the effectiveness of investment in raising GDP levels.

a deeper truth about central planning: while it could successfully drive large-scale industrialization for a limited period, it failed as a mechanism for sustained adaptive coordination in a complex economy.⁶⁰

By the 1970s, many Soviet Bloc economists were coming to conclude that markets were not merely necessary, but unavoidable. The market appeared to provide precisely what central planning lacked: decentralized coordination, discipline for underperforming firms, adaptability to unexpected shifts and a sustainable framework for continuous innovation. Yet historical evidence suggested that these virtues only emerged within fully capitalist markets, where everyday economic activity was firmly tied to investment organized around the pursuit of private profit. Pre-capitalist markets, by contrast, lacked dynamism, as guild regulations insulated producers from pressures to innovate.⁶¹ Similarly, market reforms introduced by state-socialist economies—such as Hungary's New Economic Mechanism, launched in 1968—improved immediate coordination but failed to sustain long-term innovation and growth. Polish economists Włodzimierz Brus and Kazimierz Łaski observed that market-oriented socialist firms had little incentive to innovate. Economist János Kornai identified the cause as the persistence of 'soft budget constraints': planners, unwilling to let firms fail, continued to allocate resources to underperforming enterprises. Without the threat of market discipline, firms faced no genuine pressure to improve performance.⁶²

⁶⁰ On the everyday dysfunctions of central planning, see Joseph Berliner, *The Innovation Decision in Soviet Industry*, Boston 1976; Nove, *The Economics of Feasible Socialism Revisited*; Ellman, *Socialist Planning*; Kornai, *Economics of Shortage*; Michael Lebowitz, *The Contradictions of 'Real Socialism': The Conductor and the Conducted*, New York 2012; Donald Filtzer, *Soviet Workers and Stalinist Industrialization: The Formation of Modern Soviet Production Relations, 1928–1941*, Abingdon 1976.

⁶¹ Guild Socialist accounts by G. D. H. Cole and others typically neglected the stagnation of guild-run systems, particularly their resistance to technical innovation, low rates of investment and limited capacity to adjust supply in response to demand. Instead, Guild Socialists held up pre-capitalist markets as models of ethical coordination, celebrating the 'just price' as affording workers a measure of dignity and supporting craftsmanship in production. Karl Polanyi echoed this idea in *The Great Transformation*, and E. P. Thompson gave it historical depth in *Customs in Common: Studies in Traditional Popular Culture*, New York 1991. See also Cole, *Guild Socialism Re-stated*, London 1920.

⁶² See Włodzimierz Brus and Kazimierz Łaski, *From Marx to the Market: Socialism in Search of an Economic System*, Oxford 1989; János Kornai, 'The Soft Budget Constraint', *Kyklos*, vol. 39, no. 1, February 1986. In the 1980s, NLR ran a sustained debate on the contradictions of 'market socialism', with contributions from Nove, Brus, Mandel and Diane Elson.

The lesson seemed clear: market dynamism depended upon profit-led investment. If investment decisions were not guided by profitability, markets would fail to drive efficiency and innovation. This conclusion generated a series of attempts in the 1980s and 90s to reimagine a form of market socialism; among the most influential was that of Yale economist, John Roemer.⁶³ Drawing on Brus, Łaski, Kornai and Nove, Roemer accepted that dynamic economies require the efficiency pressures imposed by profit-led investment. His solution was to reconceive socialism as a Rawlsian project of distributive justice, equalizing capital ownership across society. Capital would be collectively owned and the income it generated would be equally distributed through public institutions. Firms would still operate according to market logic, competing to maximize monetary returns, but the profits would accrue to the public rather than a capitalist elite.⁶⁴

Eliminating the capitalists as a class would undoubtedly yield major benefits. It would remove the primary source of economic inequality in capitalism: the concentration of wealth and the income streams it generates; a small group of wealthy actors would no longer dominate campaign financing, lobbying or media ownership. Basic reforms—such as full-employment policies or universal basic income—would no longer have to work around the veto power of capital. In this sense, Roemer's model, like that of Lange and Taylor before it, offered a clear break with capitalism's social structure. But in economic substance, it preserved capitalism's logic. The issue was not the preservation of the market as an allocator of resources. More deeply, it was that in Roemer's model, investment would still flow to projects expected to deliver the highest financial return. Efficiency remained not one value among others, but the overriding priority of the system. This would still be a poor

⁶³ John Roemer, *A Future for Socialism*, Cambridge MA 1994. A similar framework, centred on worker-self-managed firms and social control over investment, was developed by David Schweickart in *Against Capitalism*, Cambridge 1993, and *After Capitalism*, Lanham MD 2002. For a critical perspective, see David McNally, *Against the Market: Political Economy, Market Socialism and the Marxist Critique*, London and New York 1993.

⁶⁴ Roemer's proposal reflected a broader shift in left theory in the 1990s, in which socialism was increasingly framed in Rawlsian terms: not as the democratization and transformation of production, but as the fair distribution of its outcomes. See also G. A. Cohen, *If You're an Egalitarian, How Come You're So Rich?*, Cambridge MA 2000. For a prominent critique, see Nancy Fraser and Axel Honneth, *Redistribution or Recognition? A Political-Philosophical Exchange*, London and New York 2003.

reflection of human needs and values. Despite its redistributive ambitions, Roemer's model remained trapped within the logic of the system it sought to transcend. The democratic deliberation over competing futures to which Neurath pointed was foreclosed.

What Neurath lacked was a fully developed theory of investment as a political institution. Investment is not merely the expansion of existing production lines; it is a dynamic, future-making process. Even under capitalism, investment involves strategic decisions under conditions of uncertainty—about which goals to pursue, what forms of life to enable, and which trade-offs to accept.⁶⁵ Yet because investment remains tethered to profitability, these choices are constrained, severely limiting the range of futures they can bring into being. If investment fundamentally shapes society's future possibilities, then it must also become the primary site through which democratic politics enters economic life.

8. A MISSING MARXIST THEORY OF INVESTMENT

Why did the socialist tradition, for all its ambitions, never develop a viable theory of investment as a democratically structured process? The occlusion began with Marx himself. While he acknowledged that a post-capitalist system would need to allocate part of its output for future production, he left unexamined how that allocation would be made—or how it might be directed towards evolving social goals. The result was a tradition focused on one possible outcome of investment—the expansion of production—without a theory of how investment decisions might be made collectively and politically, as a way of shaping the future.

Part of the issue here is conceptual. Following the classical economists, Marx focused primarily on the results of net investment—that is, on the accumulation of capital—rather than the investment process itself. His analysis emphasized distinctions such as constant versus variable capital, or the division between Department I (producer goods) and Department II (consumer goods), set out in *Capital, Volume Two*. Though Marx noted the distinction within Department I between fixed and circulating

⁶⁵ For recent sociological accounts that foreground the role of imagined futures in investment decisions, see Jens Beckert, *Imagined Futures: Fictional Expectations and Capitalist Dynamics*, Cambridge MA 2016; Aris Komporozos-Athanasίου, *Speculative Communities: Living with Uncertainty in a Financialized World*, Chicago 2022.

capital, he treated it as epiphenomenal—of more concern to capitalists than to analysts of the system taking a comprehensive view.⁶⁶ Yet this last distinction is really the critical one. Fixed capital consists of investment goods: buildings, structures, machines, tools and equipment. Investment is the process of purchasing, upgrading and maintaining this fixed capital base. It establishes the underlying infrastructure of production, determining both what can be produced and how production takes place. Circulating capital, by contrast, refers to intermediate inputs—the materials consumed in production, required to keep operations running. These intermediate inputs flow through, and depend upon, the fixed-capital infrastructure. While not every adjustment in production requires changes at this level, any significant transformation—towards greater efficiency, sustainability or improved working conditions—typically involves reshaping or renewing this infrastructural foundation.

In the 1870s, Marx seems to have recognized the need to focus on investment as a distinct process that a socialist economy would have to organize differently. In the second German edition of *Capital: Volume One* (1873), he acknowledged that a socialist economy would still need to allocate a portion of its output each year for the ‘production of fresh means of production’. In ‘The Critique of the Gotha Programme’ (1875), he mocked the idea that labour would be paid its full value under socialism, pointing out that a share of total production would always have to be set aside for the ‘replacement of the means of production used up’ and for the ‘expansion of production’. However, he never developed a fuller theory of investment under socialism—one capable of performing the coordination functions that investment fulfils under capitalism, while also incorporating goals of social transformation into the organization of production. Had Marx developed a theory of investment as a distinct and politically structured process, he might have seen its potential to become the central arena of economic coordination—the *ex-ante* dimension of planning. Market exchange could still handle the *ex-post* adjustments needed for flexibility and feedback, but investment

⁶⁶ ‘Let me remind the reader here that I was the first to use the categories “variable capital” and “constant capital”. Political economy since the time of Adam Smith has confusedly mixed up the determining characteristics contained in these categories with the merely formal distinction, arising out of the process of circulation, between fixed and circulating capital’: Marx, *Capital: Vol. I*, p. 760. See also, p. 783, footnote 13.

would determine the conditions under which markets function.⁶⁷ Most of the problems Marx associated with markets—overproduction crises triggered by excessive firm entry, instability driven by uncoordinated technological innovation—are not intrinsic to exchange itself. They are failures of investment coordination. If investment were planned differently, many of those problems would not arise.⁶⁸

Neurath took a crucial step beyond Marx by recognizing that to organize the economy around multiple values would require a change in the structure of economic decision-making. He rejected the idea that planning could simply add new goals to an otherwise technical process. But like Marx, he failed to distinguish clearly between investment and other aspects of production. As a result, he imagined that multi-criterial coordination had to occur either at the micro-level of individual firms—a solution he rejected, since it left unresolved the problem of aggregating across firms—or at the macro-level of national accounting, which quickly became too complex to implement. This left him vulnerable to the criticisms raised in the Socialist Calculation Debate.⁶⁹ Instead, he should have looked to investment, which is already the mechanism by which capitalism selects its futures. Investment is where decisions are made, in conditions of uncertainty, about outcomes that are, for that reason,

⁶⁷ Marx's critique of thinkers like Proudhon, John Francis Bray and Robert Grey led him to conclude as early as the 1840s that any attempt to reform capital allocation without abolishing commodity production entirely was incoherent. See Karl Marx, *The Poverty of Philosophy* [1847] in *Marx and Engels Collected Works*, Vol. 6, London 1976.

⁶⁸ This insight was partially realized in the most effective episodes of state-led development, including those in Japan, South Korea, Taiwan and Singapore, which adapted the Soviet model by combining targeted public investment with competitive market operations at the firm level. China later followed a similar path. It was not planning itself but the attempt to plan everything that was the problem. See Chalmers Johnson, *MITI and the Japanese Miracle*, Stanford 1982; Alice Amsden, *Asia's Next Giant: South Korea and Late Industrialization*, Oxford 1989; and Robert Wade, *Governing the Market*, Princeton 1990. See also Isabella Weber, *How China Escaped Shock Therapy: The Market Reform Debate*, London 2021. None of these Asian models, however, attempted to democratize investment planning or open it to plural goals.

⁶⁹ In 'International Planning for Freedom', Neurath proposed regional planning as a way to avoid the complexity of national economic coordination. But this solution invites criticism from both directions: it lacks a mechanism for aggregating across regions, and at the same time, remains too aggregated to be implemented effectively at the local level: *Empiricism and Sociology*, pp. 422–40.

not fully comparable. It is the natural institutional site for the kind of democratic procedure Neurath envisioned. And because investment in a mature economy typically accounts for only 15–25 per cent of economic activity, coordinating it politically does not require full-scale planning. Yet it is this modest share that sets the direction of the entire system.

Why, then, did no other Marxist develop a theory of investment as a political process? The answer lies in how planning was understood. In the socialist tradition, planning was usually seen not as an arena for the articulation of disagreements but as a way to put an end to them, both economically and politically. The theory of the plan promised rational order in place of capitalist anarchy, social harmony in place of class struggle. In this vision, investment became a purely technical matter: the reproduction of existing production on an expanded scale. As a result, Marxists tended to ignore the entrepreneurial, experimental, forward-looking character of investment even under capitalism—the way it reshapes the economic landscape by proposing new combinations of technology, labour and purpose.⁷⁰ Under capitalism, these proposals are narrow in aim, filtered through the drive for profit. But they are still ideas for change; they invent futures and test limits. Had Marxists recognized that this creative dimension had to carry over into any socialist future, they might have imagined socialist investment differently: not just as a mechanism for expansion, but as a form of social experimentation—a way of posing multiple futures and deciding, collectively, which to pursue. That would have required thinking about planning not as the extinguisher of disagreements, but as a procedure for developing and clarifying them.

Instead, planning came to be seen as an end in itself, if not as socialism's very definition. Its promise of order was mistaken for the realization of justice. But planning was always better understood as a means to an end: to eliminate exploitation and build an economy capable of serving a broader range of human goals. Those goals should be pursued through whatever institutional arrangements work best. By rethinking investment—and transforming how markets would then operate—it would be

⁷⁰ This oversight was criticized both by Austrians in the Socialist Calculation Debate and later by Keynesians, who emphasized investment's role in coordinating expectations and managing uncertainty. See also Joseph Schumpeter, *Capitalism, Socialism and Democracy*, New York 1942, on uncertainty as a problem for socialist planning.

possible both to abolish and to preserve the current mode of economic life, raising it to a higher order of complexity. Such a system would not assume that workers' interests will converge on a single standard, or that automation will eliminate the need for diverse skills, or that administration will become simple—necessary assumptions for a purely technical form of economic planning to appear viable. The system we are describing here assumes, more realistically, that most processes will continue to grow more complex over time—the technical demands of production, the diversity of desired outputs and the plurality of world outlooks people hold.

9. KEYNES'S INVESTMENT FUNCTION

To rethink investment, then, we need to draw on insights from outside the Marxist tradition. The pivotal figure here is Keynes, who developed a sophisticated theory of investment: forward-looking, creative, unfolding in the context of a fundamental uncertainty about the future. Keynes was the missing participant in the Socialist Calculation Debate.⁷¹ In contrast to both the Austrian economists and the Marxists, he rejected the assumption that market exchange inherently required an economy structured around private profitability. For Keynes, market transactions and profit-driven investment were analytically distinct, and his project for economic transformation rested precisely on the separation between the two. Rather than abolishing markets, as some of the Marxists proposed, or defending the profit motive, as the Austrians did, Keynes sought to socialize investment under the control of a public authority.⁷² The Keynes of socialized investment differs substantially from the one most widely known today: the Keynes of aggregate-demand management, whose legacy is associated primarily with short-term stabilization policies, above all counter-cyclical fiscal adjustment, to maintain full employment during economic downturns. But the Keynes of the stimulus package

⁷¹ For a related take on the same issue, see T. C. Lopes and R. G. Almeida, 'What Would Have Been Keynes's Position in the Socialist Economic Calculation Debate and Why It Matters', *International Journal of Pluralism and Economics Education*, vol. 10, no. 3, 2019.

⁷² Keynes, *The General Theory*, Chap. 24. See also Hyman Minsky, *John Maynard Keynes*, New York 1975; Riccardo Bellofiore, 'The Socialization of Investment, from Keynes to Minsky and Beyond', *Levy Economics Institute Working Paper*, no. 822, 2014; James Crotty, *Keynes against Capitalism*, Abingdon 2019. I follow Crotty's reading closely here.

represents only one facet of his thought. Less familiar is the Keynes who saw deeper structural reform as essential and called for a fundamental alteration in the processes and purposes of investment to reshape the entire economy's long-run trajectory.

Keynes's socialization of investment did not imply public ownership of all firms. Instead, it meant that the state would assume strategic control over the level and direction of investment, with public and semi-public institutions accounting for 'two-thirds or three-quarters' of total investment activity.⁷³ Public authorities would also exercise control over the investment plans of large corporations, to ensure that these complemented public priorities.⁷⁴ Market exchange would continue to structure everyday economic interactions and private firms would still invest, but only within a framework whose direction was set by public investment. In Keynes's view, this reorganization of investment would provide a foundation for lasting transformation. By maintaining investment beyond the point at which private profitability would naturally decline, the state would gradually erode the profit motive itself. As the economy approached a condition of 'capital saturation', both interest rates and profit rates would trend towards zero, ultimately eliminating capital's scarcity value.⁷⁵ In *The General Theory*, Keynes explained that, although

⁷³ John Maynard Keynes, 'The Long-Term Problem of Full Employment' [1943], in *The Collected Writings of John Maynard Keynes*, Vol. 27, *Activities 1940–46: Shaping the Post-War World—Employment and Commodities*, London 1980, p. 322; see also 'Maintenance of Employment: The Draft Note for the Chancellor of the Exchequer', 10 June 1943, in the same volume. In 1943, the English economist James Meade proposed a set of demand stabilizers to lessen the severity of recessions—the sort of mechanism that would later bear the name Keynesianism. Keynes rejected this approach outright: 'I think you lay too much stress on cure and too little on prevention. It is quite true that a fluctuating volume of public works at short notice is a clumsy form of cure . . . On the other hand, if the bulk of investment is under public or semi-public control and we go in for a stable long-term programme, serious fluctuations are enormously less likely to occur': 'Letter to J. E. Meade', 27 May 1943, p. 326.

⁷⁴ When Keynes referred to 'semi-public' investment, he had in mind the large corporations that were so systemically important that they operated, in effect, as public utilities. Unless the state could control their investment decisions, public investment would have to fluctuate wildly in response to private plans—an eventuality Keynes explicitly recognized as 'clumsy' and unworkable. See also Crotty, *Keynes against Capitalism*, which supports this argument with more textual evidence.

⁷⁵ Keynes, 'Letter to Josiah Wedgwood', 7 July 1943, *Collected Writings*, Vol. 27, p. 350. See also Keynes, 'The Long-Term Problem of Full Employment', p. 324.

‘in the strict sense’ this ‘has never yet occurred, not even momentarily’, it could likely be brought about within ‘twenty-five years or less’, once the socialization of investment had taken place.⁷⁶ Keynes’s famous line about the ‘euthanasia of the rentier’ is rarely quoted in full, for it links the extinction of rentierism to ‘the euthanasia of the cumulative oppressive power of the capitalist to exploit the scarcity-value of capital’. This, again, was to be achieved by state action forcing ‘an increase in the volume of capital until it ceases to be scarce’.⁷⁷ Keynes’s economics thus posed an implicit challenge to both market capitalism and central planning: if capitalism’s core instability arose from its reliance on private investment decisions, then replacing that mechanism with a publicly governed investment function would fundamentally alter the system without necessitating the abolition of markets.

For Keynes, the orchestration of public and private investment to achieve these goals was—or should be—a technical rather than political matter. He famously compared the future role of economists to that of dentists, implying that once the correct procedures were identified, implementing them would become almost routine. Yet Keynes’s technical framing did not stem from a desire to organize the economy around a single, overriding goal like efficiency or maximal output. On the contrary, he anticipated a future where the drive for accumulation would fade, allowing humanity to finally attend to its ‘real’ and ‘permanent’ problem: how to use freedom from economic necessity to live ‘wisely and agreeably and well’.⁷⁸ In singling out these three values as distinct dimensions of the good life, Keynes clearly envisaged a society organized around multiple ends. John Stuart Mill had imagined something similar, nearly a century before. He looked forward to a post-competitive society, ‘the stationary state’, in which the pursuit of profit would give way to ‘the Art of Living’,

⁷⁶ Keynes refers to this situation as one of ‘full investment’, in the sense that ‘an aggregate gross yield in excess of replacement cost could no longer be expected on a reasonable calculation from a further increment of durable goods of any type whatever’: *The General Theory*, p. 324.

⁷⁷ Keynes, *The General Theory*, p. 376. This would still leave some room for entrepreneurship in bringing new products to market: p. 221.

⁷⁸ Keynes, ‘Economic Possibilities of Our Grandchildren’ [1930], in *Essays in Persuasion*, London 1931, pp. 373, 367. Keynes assumed that the transition to a life in which ‘we shall once more value ends above means and prefer the good to the useful’ would be non-conflictual, the only problem being an individual one of figuring out how to occupy one’s time.

in contrast to ‘the art of getting on’.⁷⁹ The resemblance between Mill’s ‘stationary state’ and Keynes’s projection of a fully invested economy is striking—and surprisingly underexplored. Both imagined a world in which the profit motive would fade and economic life would give way to moral and cultural progress. But whereas Mill believed this transformation might occur naturally, once demographic pressures were addressed through family planning, Keynes—while making the same demographic caveat—understood that the path to zero profit would be far more turbulent, and that capital saturation could not be achieved without deliberate and sustained public intervention.

Yet both Mill and Keynes operated with what I have called an additive theory of value: the assumption that incorporating additional goals into economic life enriches decision-making but does not fundamentally complicate it. From this perspective, the transition from single-criterion capitalism to multi-dimensional prosperity could unfold smoothly, as non-economic values simply became additional inputs—factors integrated by experts into economic or investment planning. In this framing, pluralism appears primarily as a technical problem rather than a political one. But Keynes’s (and Mill’s) additive conception of value misses a crucial difficulty. As we have seen, the coordination of plural values cannot be delegated solely to experts or reduced to technical implementation; it involves irreducibly political choices. Keynes’s important ideas about the structural institution of a post-capitalist investment function will need to be significantly repurposed if investment is to be treated in a properly democratic fashion from the outset. That will require structures that are open and accountable, as decentralized as possible and capable of clarifying disagreement at every level, rather than suppressing it beneath a veneer of technocratic expertise.

Marxists have often dismissed Keynes for a different reason, charging that he overlooked the fundamental political cleavage at capitalism’s

⁷⁹ John Stuart Mill, *Principles of Political Economy*, London 1848, Book IV, Chap. 6, §2. Like Keynes, Mill has recently been reconsidered as a kind of liberal socialist. See Helen McCabe, *John Stuart Mill, Socialist*, Cambridge 2023, who identifies five sub-goals within Mill’s modified utilitarianism: progress, security, liberty, equality, fraternity. See also Kirsten Madden and Joseph Persky, *Building a Social Science: Nineteenth-Century British Cooperative Thought*, Oxford 2024, which reconstructs the cooperative theories of Robert Owen, William Thompson, J. S. Mill and G. D. H. Cole.

core: the class struggle over income distribution which shapes all economic institutions into mechanisms of class domination. In *The General Theory*, Keynes assumes that wages correspond to the marginal productivity of labour—that once full employment is achieved, the wage structure would be technically determined and self-stabilizing. On this view, worker demands beyond that equilibrium wage level are not expressions of reasonable political agency but threats to macroeconomic stability. It is because Keynes did not see wages as a political problem that he focused his attention so intensely on investment as the core dysfunction of capitalism.⁸⁰

Here, too, crucial differences separate Keynes from Marx. Both see capitalism as tending towards falling profit rates: in the absence of sufficient technological dynamism, the accumulation of capital leads to excess supply relative to demand, putting downward pressure on financial returns. But whereas Marx sees this tendency as a compulsive feature of capitalist accumulation—a dynamic that drives overproduction and precipitates periodic crises—Keynes interprets the problem not as overproduction but underinvestment. The issue, from his perspective, is not that capitalists invest too much, with over-capacity leading to falling profit rates, but that they invest too little to fully utilize society's productive resources. With sustained public action, he argued, investment could be raised to a level that not only maintains full resource utilization—ensuring full employment—but also, as discussed above, gradually forces the rate of return on investment down to zero. At that point, only those investments undertaken out of entrepreneurial initiative, technical interest or social purpose would continue.

Keynes was of course correct to suggest that even during apparent periods of overproduction, investment driven by non-profit motivations would stimulate demand, helping bring the economy closer to full employment. This insight underpinned his central policy prescription:

⁸⁰ Although Keynes assumes in *The General Theory*, Chap. 2, that wages correspond to the marginal productivity of labour under full employment, this has been rejected by many post-Keynesians, particularly those in the tradition of Luigi Pasinetti and Joan Robinson, who argue that income distribution is shaped by institutional and political forces. See Pasinetti, *Growth and Income Distribution: Essays in Economic Theory*, Cambridge 1974; Marc Lavoie, *Post-Keynesian Economics: New Foundations*, Cheltenham 2014. See also Sraffa, *The Production of Commodities by Means of Commodities*.

since private capitalists frequently fail to invest enough to maintain full employment, governments should intervene to meet the shortfall. Yet Keynes did not seriously consider the political resistance such a programme would inevitably encounter—from capitalists relying on unemployment as a disciplinary tool over labour, and from workers who, once strengthened by sustained full employment, might leverage their improved bargaining position to push wages higher and hence politicize income distribution.⁸¹ Instead, Keynes treated the pursuit of full employment as a straightforward technical improvement that would benefit all; it remaining unrealized only because society clung to outdated ideas—not because those ideas served powerful and still present interests.⁸²

10. FUNCTIONAL FINANCE

Nevertheless, Keynes's insight opens up a vital avenue for economic transformation. He allows us to rethink the fundamental relationship between money and the productive economy by distinguishing between nominal constraints—balanced budgets, debt limits—and the real constraints posed by actual productive capacity: the availability of labour, capital and raw materials. Another way of expressing Keynes's core insight: the real limit on economic activity is not financial but material. As long as there are idle resources, the state can and should spend—regardless of its current fiscal position. As Keynes famously put it: 'Anything we can actually *do* we can afford. Once done, it is there.' It was possible to build a New Jerusalem 'out of the labour which in our former vain folly we were keeping unused and unhappy in enforced idleness.'⁸³ Public spending does not crowd out private activity; it mobilizes what would otherwise remain idle. In such conditions, money is not a scarce input but a coordinating tool.

This insight was later formalized by Abba Lerner as the theory of functional finance. Lerner argued that the state does not need to raise taxes

⁸¹ On the political obstacles to full employment, see Michał Kalecki, 'Political Aspects of Full Employment', *Political Quarterly*, vol. 14, no. 4, October 1943. Kalecki argued that capitalists would oppose permanent full employment not because it was economically unfeasible, but because it would reduce their power to discipline labour and weaken the social position of business leaders.

⁸² See Crotty, *Keynes against Capitalism*, pp. 307–8.

⁸³ Keynes, 'How Much Does Finance Matter' [1942], in *Collected Writings*, Vol. 27, p. 270. The question of ownership is distinctly secondary here.

or issue debt to 'pay for' public spending. What matters is not where the money comes from, but what the spending does—whether it mobilizes unused capacity or pushes the economy beyond its real limits.⁸⁴ This perspective recasts the relationship between taxation and public spending—and, crucially, between savings and investment. In mainstream economic thought, taxes are seen as the necessary precondition for public spending: governments must first collect revenue before they can finance expenditures. In the Keynesian framework, the same sequence can just as easily be read the other way around. Public spending increases production and income, which then generate the tax revenues needed to balance the system. Taxes in this view need not fund state spending in advance; they could equally be used to modulate purchasing power after the fact—to prevent inflation. The same interpretive flexibility applies to the relationship between savings and investment. In standard accounts, savings are seen as a pool from which investment is drawn. But Keynes shows that investment can come first: it raises output and incomes, and those higher incomes are then partially saved. From this perspective, savings are a residual. In both cases, causality can be seen as flowing in either direction. What matters is how we interpret the coordination of the system—and what role public authority has in managing it.

Keynes's insight that investment can precede and create savings helps illuminate the underlying logic of state-directed industrialization. The Soviet Union's ability to launch its Five-Year Plans did not depend on forcing peasants to save in advance, as Bukharin and Preobrazhensky assumed it must; instead, the state simply began mobilizing underemployed labour for industrial projects.⁸⁵ Workers were paid in money, but because the investment share of output rose rapidly, much of this income could not be spent on consumption goods and was effectively saved. A similar logic underpinned wartime economic mobilization in the United States and Britain. There, too, governments expanded production not by

⁸⁴ Abba Lerner, 'Functional Finance and the Federal Debt', *Social Research*, vol. 10, no. 1, February 1943; see also Lerner, *The Economics of Control: Principles of Welfare Economics*, New York 1944, Chap. 10–11; Keynes, *How to Pay for the War*, London 1940. In a letter, Keynes says that Lerner's argument is 'impeccable' but adds: 'heaven help anyone who tries to put it across to the plain man at this stage of the evolution of our ideas.' Keynes, 'Letter to J. E. Meade', 25 April 1943, in *Collected Writings*, Vol. 27, p. 320.

⁸⁵ Nikolai Bukharin, *The Politics and Economics of the Transition Period*, London 1979 [1920]; Yevgeni Preobrazhensky, *The New Economics*, Oxford 1965 [1926]. For this reading of Soviet development, see Allen, *Farm to Factory*, Chap. 3.

drawing on pre-existing private savings, but by directly allocating real resources and issuing money as needed—encouraging households to save after the fact through the sale of war bonds. In both cases, the real constraint was not financial but material: as long as factories, workers and raw materials could be organized, the economy could expand without inflationary consequences.

This shift in thinking also marks a broader transformation in what value accounting is meant to achieve. In traditional socialist models, accounting systems are designed to track the precise creation of value, often in labour time or physical quantities, in order to guide allocation and prevent exploitation. Keynesian theory, by contrast, reflects an adaptation to the complexity of modern industrial economies, where production involves large overheads, scale effects and systemic interdependence. In this setting, isolating individual contributions becomes increasingly difficult, and the purpose of accounting changes. Rather than serving as a basis for exact allocation, statistics become tools for macroeconomic coordination: monitoring capacity, identifying bottlenecks and ensuring that investment and consumption remain within real resource limits. The aim is no longer to calculate who contributes what, but to guide long-term planning in the face of ongoing uncertainty.⁸⁶

However, even with an advanced statistical apparatus, there are many reasons why functional finance is difficult to implement in a capitalist economy, structured around the accumulation of private wealth. Proponents of functional finance often point out that a government is not a household or a firm; the state can spend more than it receives in tax revenue and print money to buy its own debt. As long as recipients spend the money, the result should be increased demand, higher output and, eventually, full employment.⁸⁷ But in an economy organized around private accumulation, where money functions both as a means of exchange and as a store of value, there is no guarantee that recipients of government spending will put that money back into circulation.

⁸⁶ Keynes joked in a wartime letter: ‘We are in a new era of joy through statistics.’ Keynes, ‘Postwar Employment: Note by Lord Keynes on the Report of the Steering Committee’, 14 February 1944, *Collected Writings*, Vol. 27, p. 371.

⁸⁷ That governments are not financially constrained in the same way as households or firms is a central claim of Modern Monetary Theory. See Randall Wray, *Understanding Modern Money: The Key to Full Employment and Price Stability*, Cheltenham 1998; Stephanie Kelton, *The Deficit Myth: Modern Monetary Theory and the Birth of the People’s Economy*, New York 2020.

Governments may not need to manage their balance sheets, but households and firms do. When economic actors can choose to prioritize financial security—paying down debt, building reserves, buying financial assets—new spending may simply strengthen private balance sheets, instead of stimulating demand.

This helps explain why, in Japan after 1991 or in the United States after 2008, large-scale public stimulus failed to generate full recovery. Government spending was absorbed into savings and speculation—as well as used to purchase imports—neutralizing its expansionary effects.⁸⁸ When stimulus flows into balance-sheet adjustments rather than productive activity, growth remains sluggish and underutilization persists. Meanwhile, the uneven distribution of stimulus effects can deepen inequality: firms with pricing power raise prices and distribute profits to shareholders, while inflation erodes the real incomes of low-wage households—as happened in the US following the \$7 trillion 2020–21 stimulus in response to the Covid pandemic.⁸⁹ This tension between the ‘real resources’ logic of functional finance and the financial logic of private actors helps explain why capitalist economies, even when aggressively stimulated, often struggle to reach full utilization. It also suggests a compelling reason to privilege direct public investment over other forms of stimulus, on the grounds that it directly mobilizes idle resources, limiting leakage into financial accumulation.

Beyond these macro-financial frictions lies a deeper political problem. Even when the technical conditions for stimulus exist, its deployment at a level adequate both to generate and maintain stability and foster economic dynamism depends on the state’s willingness to confront the entrenched structural power of capital. Governments must be prepared to face bond markets without fear, force central banks to monetize debt, impose capital controls to prevent capital flight, and manage trade to reduce fiscal constraints. More fundamentally, if functional finance is

⁸⁸ Richard Koo, *The Holy Grail of Macroeconomics: Lessons from Japan's Great Recession*, Singapore 2003; Gauti Eggertsson and Paul Krugman, ‘Debt, Deleveraging and the Liquidity Trap: A Fisher-Minsky-Koo Approach’, *Quarterly Journal of Economics*, vol. 127, no. 3, 2012. See also Shaikh, *Capitalism: Competition, Conflict, Crises*, Chap. 13.

⁸⁹ Isabella Weber and Evan Wasner, ‘Sellers’ Inflation, Profits and Conflict: Why Can Large Firms Hike Prices in an Emergency?’, *Review of Keynesian Economics*, vol. 11, no. 2, 2023. On the uneven distributional consequences of Keynesianism, see Andrew Glyn, ‘Social Democracy and Full Employment’, *NLR* 1/211, May–June 1995.

going to be used to restructure the economy around social and ecological ends, states must be willing to ratchet up public investment while establishing control over private investment decisions—all of which will alienate powerful investors and lead to efforts at economic sabotage. Functional finance may describe how the system works in theory, but in practice it has only been embraced in moments of systemic crisis—when it is seen as saving capitalism, not challenging it.⁹⁰

II. THE NATIONAL INVESTMENT BOARD

Yet even if Keynes underestimated the political opposition his programme would encounter, what matters for our purposes is that he saw how it could be implemented. His confidence in the profound restructuring he proposed rested on his diagnosis of mature capitalist economies' chronic tendency towards stagnation: as markets became saturated and the pace of technological innovation slowed, profitability and investment rates would decline, leaving productive resources persistently underutilized. In this situation, traditional levers of macroeconomic policy—lower interest rates, tax cuts or periodic fiscal stimulus—would no longer suffice to reinvigorate private investment. Instead, a structural transformation was necessary: public investment would need to assume the coordinating role once played by private capital. Keynes believed that the social and political tensions generated by prolonged stagnation would eventually force society to pursue new foundations for stability and prosperity through the socialization of investment.

The institutional mechanism Keynes proposed for this was the National Investment Board. He first raised the idea in 1928 and returned to it repeatedly throughout the 1930s and 40s.⁹¹ Conceived as a public

⁹⁰ This reflects Geoff Mann's interpretation of Keynesianism as a political project aimed at saving capitalism from itself, not transcending it: *In the Long Run We Are All Dead: Keynesianism, Political Economy and Revolution*, London and New York 2017. See also Jamie Merchant, *Endgame: Economic Nationalism and Global Decline*, London 2024, which argues that functional finance is best understood as a strategy for stabilizing capitalism, not a challenge to its underlying structure.

⁹¹ Keynes initially proposed the idea of a National Investment Board to the Liberal Industrial Inquiry in *Britain's Industrial Future*, London 1928; see Crotty, *Keynes against Capitalism*, Chap. 8. For a contemporary version of a similar institutional arrangement, see Saule Omarova *et al.*, 'The National Investment Authority: An Institutional Blueprint', Berggruen Institute, 2022.

authority tasked with directing long-term economic development, the Board's primary mission would be to maintain full employment through sustained public investment. Though accountable to Parliament, the Board would be staffed by technical experts with independent authority to approve or deny major private investment projects.⁹² Crucially, its decisions would be guided by the availability of real resources—labour, productive capacity, natural resources—rather than financial constraints. Freed from the obligation to generate financial returns, the Board could pursue full resource utilization as a goal in its own right. Over time, by consistently prioritizing these broader collective aims, the National Investment Board would gradually displace private accumulation as the central engine of economic activity. As one public-investment project after another broke ground, the economy—like a car previously stalled—would lurch forward and then gather momentum. At that point, the economic machinery would be moving again; the only remaining question would be the direction in which to go.

For Keynes, the answer to this question seemed clear. He did not believe that capitalism, even in its mature form, had met everyone's needs. On the contrary, because private investment was narrowly guided by the search for financial returns, it would build houses and factories and churn out consumer goods and services only when doing so promised an adequate profit. This satisfied many material needs, but it left countless others unmet, particularly in areas where profitability was uncertain or low. More troubling, the logic of private investment systematically ignored whole categories of need which could not easily be priced: aesthetic quality, cultural depth, emotional well-being, social connection—the bases for living 'wisely, agreeably and well'. Public investment, Keynes argued, could reshape the economy around a richer conception of the good. He asked why, in an advanced society, we should not 'add to every substantial city of the realm the dignity of an ancient university or a European capital':

⁹² According to Crotty, Keynes 'believed that the institutions that will design and implement the details of economic planning must be free of political interference in their day-to-day operations. These should be the exclusive province of experts and technicians. But the general objectives and relative priorities of planning are to be under democratic political control, the sole province of the elected authorities': *Keynes against Capitalism*, Chap. 8. Although Crotty uses the terms 'liberal socialism' and 'democratic socialism' interchangeably, what Keynes advocates here aligns far more closely with a liberal technocratic model than with genuinely democratic control.

Enhancing our local schools and their surroundings, our local government and its offices, and—perhaps above all—providing a local centre of refreshment and entertainment, complete with an ample theatre, a concert hall, a dance hall, a gallery, a British restaurant, canteens, cafés and so forth.⁹³

This was what it meant, to Keynes, to build a ‘New Jerusalem’. He estimated it would take a few decades to get there.

These ideas were fleshed out by William Beveridge in two wartime reports for the British government: *Social Insurance and Allied Service* (1942) and *Full Employment in a Free Society* (1944), written with the assistance of the political economist Nicholas Kaldor. The 1944 report outlined a comprehensive programme for eradicating what Beveridge called the ‘five great evils’—ignorance, squalor, disease, poverty and idleness. Central to its project was a sustained commitment to large-scale public investment, directed by a National Investment Board. In fact, Beveridge anticipated that only 25 per cent of total national investment would remain in private manufacturing industry, and even this share would fall under the ‘direct control’ of the Board, since the latter would have the ‘power to stop or reduce by order a proposed private investment plan’. This closely aligns with the proposals Keynes was making in his wartime letters—albeit now given a more explicit policy edge.

This prioritization of public investment would ensure that it was not merely ‘a gap-filling device to take up the slack of private outlay’, an approach Keynes himself had dismissed as clumsy and ineffective. Instead, public investment would be mobilized deliberately and directly for its own sake. By harnessing society’s resources to deliver what today might be termed universal basic services, Beveridge sought to build widespread popular support for a transition from profit-led accumulation to an economy driven by public investment. Each of his first four evils would be directly confronted through targeted investments—

⁹³ Keynes, ‘How Much Does Finance Matter?’, *Collected Writings*, Vol. 27, p. 270. Keynes’s vision of the New Jerusalem, though morally expansive, also remained highly technocratic. He assumed that the content of a good life—refinement, cultural opportunity, urban beauty—would be self-evident in a society freed from the pressures of accumulation. What’s missing is any sense that competing visions of the future might persist, or that trade-offs among social goals would require political negotiation. His optimism seems grounded in a widely held belief among neoclassical economists that material abundance would render all such conflicts irrelevant.

universal education, mass public housing, universal healthcare and income security through an expanded welfare state—on a scale large enough to eliminate the fifth evil, idleness, by maintaining permanent full employment.⁹⁴ A welcome side effect of pursuing these aims would be the stabilization of the economy and the effective end of recessions.

Beveridge and Kaldor envisaged this transformation as a three-phase process. In the initial ‘transition’ phase, unfolding through 1945–47, the economy would shift from wartime measures to peace. During the second phase, ‘reconstruction’, public investment would be dramatically expanded to build the physical and social infrastructure necessary for a flourishing society, with high investment continuing until society’s needs were fully met. Beveridge and Kaldor suggested this phase would take twenty years, meaning that from 1968(!) the economy would begin to enter its third and final phase, in which investment levels would gradually decline and the focus would shift to expanding consumption. High taxes on income would ensure that consumption rights were broadly shared across the population. Working hours would be systematically reduced, too, allowing individuals more time for leisure and cultural pursuits.⁹⁵

At this point, the result would seem to resemble the socialist vision of a post-capitalist society, in which material security is guaranteed, free time is abundant and the profit motive has been eliminated. But the path to this world is different. Rather than socializing all production, the Keynes–Beveridge–Kaldor project required only a socialization of investment. Market exchange would persist, but it would take place in an economy where both interest rates and profit rates had been pushed to zero. Firms would still exist, too, but they would no longer generate profits; the only income available would be labour income, paying managers’ and workers’ salaries, rather than generating returns for investors.

⁹⁴ William Beveridge, *Full Employment in a Free Society*, London 1944, pp. 177–8. Beveridge (1879–1963), a youthful Fabian, was recruited as a civil servant to the Board of Trade (1908–19), served as Director of the London School of Economics (1919–38), returned to government service as a wartime adviser, then entered Parliament as a Liberal MP.

⁹⁵ Beveridge, *Full Employment in a Free Society*, pp. 152–9. Beveridge followed Keynes’s three-phase postwar plan, ‘The Long-Term Problem of Full Employment’, *Collected Writings*, Vol. 27, pp. 320–5. The main difference is that Beveridge refrains from discussing the third period, Keynes’s ‘golden age’, in terms of the reduction of the rate of profit to zero.

(Here Keynes and Beveridge were less radical than Mill, who argued that at the point where profit ceases to motivate investment, all enterprises would transition to worker self-management.) While Beveridge stressed the persistence of liberal freedoms, including freedoms of speech, association, occupational choice and market exchange, he pointed out that the list of essential liberties ‘does not include liberty of a private citizen, to own means of production and to employ other citizens in operating them at a wage’.⁹⁶ By Keynes’s definition, this would still be capitalism—since, for him, capitalism was any system structured around monetary incentives—but capitalists themselves would cease to exist.⁹⁷ The state, having taken responsibility for the investment function, would continue to allocate resources based on non-monetary goals.

12. STRUCTURAL FLAWS

The project of social transformation outlined by the Keynesians was bold, but its political foundations were weak. This helps to explain why the programme was never really implemented after the Second World War. The radical Keynesians failed to reckon with the dominant social forces whose interests it would jeopardize—or the working-class support it might attract. They thought that investment and employment policies could be designed by experts like themselves as neutral, technical responses to the problem of economic coordination. Unlike Marxists, who understood the capitalist economy as a site of political conflict between capital and labour, early Keynesians treated wages as if set by marginal productivity and saw investment as a technical input rather than a site of strategic contestation. From this perspective, achieving full resource utilization appeared not as a shift in power, but as a universal good. In failing to recognize the class nature of the economy they sought to reform, Keynesians misunderstood both the resistance their programme would provoke and the basis of support it would need to succeed.

Nowhere is this clearer than in their discussions of full employment. Keynes’s programme aimed to sustain permanently high levels of investment in order to prevent mass unemployment. But unemployment is

⁹⁶ Beveridge, *Full Employment in a Free Society*, pp. 21–3.

⁹⁷ Crotty, *Keynes against Capitalism*, pp. 78–82.

not just a byproduct of economic cycles—it is a mechanism of class discipline. When labour markets tighten, wages rise. Capitalists may tolerate this so long as productivity keeps pace. But under Keynes's programme, public investment would push beyond that point—removing capitalists' ability to reduce the demand for labour. Recall Keynes's suggestion that, by continuing to invest far past the point at which a recession would typically be triggered, society could achieve a 'euthanasia of the rentier' over the course of just a few decades. As Michał Kalecki pointed out, the capitalists would not go quietly. They would resist incorporation into an economic system they no longer controlled—and would oppose, with all of their considerable power, any institution that threatened their capacity to provoke a recession through disinvestment. A National Investment Board, for precisely that reason, would become a central target.⁹⁸

But the problem was not just capitalist resistance. Workers might also see full employment as a starting point from which to leverage for further demands. Greater job security would give them the confidence to push for higher wages and for changes in how production is organized. Rather than organizing labour as a political force capable of defending and shaping public investment, Keynesians tried to contain it. Beveridge, for example, argued that unions would need to discipline their members in order to make full employment compatible with economic stability.⁹⁹ But in seeking to limit labour's role, Keynesians would demobilize the very people whose support they needed. Instead of building a political base, they sought to manage it away.

The Keynesian commitment to political 'neutrality' extended to their model of public investment. They assumed that the state would steer

⁹⁸ Kalecki, 'Political Aspects of Full Employment'. Beveridge noted this objection. It could be argued, he says, that a 'State policy of full employment will always be liable to sabotage by capitalists desiring to make difficulties for the State' and that 'the piling up of wealth' among the rich, as a result of these same policies, might 'be used to manipulate the political machine': *Full Employment in a Free Society*, p. 206.

⁹⁹ Beveridge, *Full Employment in a Free Society*, pp. 198–201. Gösta Rehn and Rudolf Meidner argued, against Beveridge, that unions should embrace the wage pressure that comes with full employment, coordinating rising wage demands across the economy. Firms unable to maintain sufficient productivity would exit, enabling the economy to shift resources towards more dynamic sectors. See Erik Bengtsson, 'The Origins of the Swedish Wage Bargaining Model', *International Labour and Working-Class History*, vol. 103, Spring 2023.

economic development towards socially beneficial goals without fundamentally altering how firms or workers operate. Unlike the More-to-Marx socialists, who imagined a world in which all would act in the interests of each, Keynesians assigned the task of acting in the general interest to the state, while leaving everyone else to pursue monetary rewards. Even at the limit of full investment—when profits and interest rates have fallen to zero—firms would remain efficiency-first organizations, because workers and managers would continue to be driven by performance-based financial incentives. This framework placed an impossible burden on the state. It assumed that a single institution could correct for the failures of an economy still structured around the pursuit of financial gain, rather than transforming those structures so that firms and workers become multi-criterial actors in their own right.

This leads to the programme's first structural failure: excessive centralization. Like all models of central planning, Keynesianism faces the classic knowledge problem: the state lacks the local, sector-specific knowledge necessary to make effective investment decisions across the entire economy. Keynesians often attempt to compensate for this by invoking 'state capacity'—relying on experts, models and long-term planning.¹⁰⁰ But much of the relevant knowledge is embedded in the lived practices of firms and industries, and cannot be fully captured or transmitted to a central authority. Even with the best expertise, a centralized investment board would struggle to allocate resources effectively across the economy.¹⁰¹

The model's second structural failure was the assumption that the state could overcome the problem of uncertainty through scale and coordination. Keynes rightly saw uncertainty as a central problem of capitalism:

¹⁰⁰ See for example, Mariana Mazzucato, *The Entrepreneurial State*, London 2013; and *Mission Economy*, London 2021. See also Dani Rodrik *et al.*, 'The New Economics of Industrial Policy', *Annual Review of Economics*, vol. 16, 2024.

¹⁰¹ This reflects a deeper structural problem in contemporary mission-oriented frameworks. Thinkers like Mariana Mazzucato emphasize the role of public investment in shaping innovation and directing markets towards long-term social goals, but leave the structure of private production intact—assuming that firms will continue to respond to profitability, even as the state pursues broader values. This is the inverse of Galbraith's old adage: not 'private opulence and public squalor', but 'public purpose and private myopia'. See John Kenneth Galbraith, *The Affluent Society*, Boston 1998 [1958], p. 203.

private investment slows when the future is unclear. He thought the state could step into this void, boldly investing where private firms hesitated, smoothing out risk and creating the conditions for stability. But acting in spite of uncertainty does not resolve the problem of uncertainty itself. Large-scale projects require long lead times, and even with good information, planners make mistakes. As Schumpeter noted in *Capitalism, Socialism and Democracy*, they can back the wrong technology, build in the wrong places, misread long-term demand.¹⁰² Keynes thought that because the state does not face profit constraints, it could absorb these errors over time. But without clear mechanisms for feedback or revision, mistakes can accumulate. Planners may double down on failed projects rather than change course, as they did in the Soviet Bloc, undermining the legitimacy of public investment and sapping confidence in the institutions that direct it.

The third structural failure was Keynes's treatment of investment as a technical rather than a politically contestable process. Like Mill before him, Keynes was a multi-criterial thinker who recognized that economic life should be guided by values beyond profit. But he assumed that these could simply be added into the calculus of the planner. He did not reckon with the conflicts that adding those goals necessarily generates. Pursuing ecological sustainability may come at the cost of living standards or food production; prioritizing care may reduce efficiency gains. All investment decisions require trade-offs—and these are no mere technical matter. They are political judgements about the kind of society we want to build. Keynes assumed that these questions could be resolved through the application of technical expertise. But history shows that expert planning, even with good intentions, can produce deeply unjust outcomes when it overrides democratic participation. The real challenge is to democratize the procedure by which goals are set, trade-offs are negotiated and futures are chosen.

The Keynesian framework did allow for investment priorities to be debated and set by Parliament, which also appointed the leaders of the investment board. But the public's role was limited to electing parliamentary representatives who might, at best, adjust the guidance given to

¹⁰² Schumpeter, *Capitalism, Socialism and Democracy*, p. 97. Schumpeter also notes that, in a socialist society, 'there will be plenty to fight about', p. 213.

technocratic planners. There was no institutional mechanism by which workers, communities or social movements could shape the way public goods were defined and targeted—or contest the trade-offs embedded in the state's investment decisions. For a time, this omission could be masked by economic gains. But as demands deepened, and as the political stakes of investment became more visible, the legitimacy of a system without voice would begin to erode. This contradiction played out even under the limited Keynesianization of Britain in the postwar period.

Though aspects of the welfare state were implemented by the Attlee government (National Insurance, NHS), Keynesians never succeeded in using public investment to transform long-term economic development. But, here and elsewhere, they did get states to adopt policies aimed at achieving high employment. For a time, this Keynesian compromise worked: employment remained high, wages rose and living standards improved. Unions restrained workers' demands, maintaining stability rather than pushing for systemic change. However, the mismatch between workers' growing power and their inability to use it ultimately led to disillusionment and disengagement. By the late 1960s, the cracks in this arrangement became impossible to ignore. Workers, students and marginalized groups demanded not only better living conditions but also a greater say in how society was run. This explosion of demands overwhelmed that era's technocratic systems of management. The outcome was a period of intensifying class struggle through the 1970s and 80s, in which Thatcher's government spearheaded the interests of the capitalist class and won a set of far-reaching victories.

Yet Keynes's discovery was of profound importance for proponents of a post-capitalist order. The modern state already invests for non-pecuniary reasons. Its projects do not need to generate profits. They are undertaken for a public purpose: to provide housing, education, healthcare and so on, for their own sake. They exemplify an entirely different investment logic, in which resource allocation is guided by social priorities rather than financial return. Grappling with the chronic joblessness of the interwar period, Keynes's insight that full employment could be one such priority was the original impetus behind his call for the socialization of investment. Once he saw that public investment could become the economy's coordinating force, its role expanded dramatically in his thinking: not merely a stabilizing tool, but a vehicle for social transformation. By severing the links between investment and future profitability, on the one hand, and prior savings, on the other, Keynes

suggested a powerful institutional tool for a post-capitalist economy—a potentially multi-criterial public-investment function.¹⁰³

13. LESSONS FOR A MULTI-CRITERIAL FUTURE

What conclusions should be drawn from this long history? First, the struggle for an economic order governed by broader values than the profit drive alone, so tirelessly reimagined from More to Cabet to Morris, can only succeed if it grasps the full complexity of contemporary capitalist societies. The mature Marx devoted himself to that problem but—the second lesson—failed to give sufficient attention to the problems of the post-capitalist transition, especially regarding investment. Grappling with these, in conditions of isolation, backwardness and permanent external threat, Soviet planners invented the command-economy model of modern industrial development, whose extraordinary advances in productive capacity came at the price—a third lesson—of negating local variations, ground-level knowledge and the importance of flexibility and autonomy in day-to-day activity, where the market might play the role of servant, not of master.

Fourth, as Neurath saw, the centralized plan under a hierarchical party structure could never adequately meet ‘the wish for co-existence of

¹⁰³ The social transformation of investment would also be central to two models for a socialist economy developed in the 1980s and 90s: Pat Devine’s *Democracy and Economic Planning* and David Schweickart’s *Against Capitalism*. Devine comes closest to treating investment as a political procedure, although—as discussed above—within a framework of negotiated coordination, where firms and communities propose and revise investment plans through participatory mechanisms. For Devine, investment is framed as a site of deliberative convergence rather than of political contestation. In Schweickart’s model, investment is socialized and, on the public side, politicized to some extent. On the historical context, see Neil Warner, *Towards ‘No Alternative’: The Rejection of Proposals for the Socialization of Investment in the United Kingdom, France and Sweden, 1972–1991* (PhD diss., LSE 2024). For an updated eco-socialist version of this model, see Pat Devine and Fikret Adaman, ‘Democracy, Participation and Social Planning’, in Clive Spash, ed., *Routledge Handbook of Ecological Economics*, London 2017. Others have developed frameworks that rely on Devine and Adaman’s insights into socialist investment but dispute their way of integrating day-to-day firm operations: see Part 3 of David Laibman, *Deep History: A Study in Social Evolution and Human Potential*, New York 2007; Saros, *Information Technology and Socialist Construction*; Benanav, ‘Socialist Investment, Dynamic Planning and the Politics of Human Need’, *Rethinking Marxism*, vol. 34, no. 2, 2022.

different forms of life and organization'. That would require democratic adjudication, therefore also—a fifth lesson—new forms of economic education, which Neurath attempted with his ISOTYPE project and his work at the Society and Economy Museum in Red Vienna. Sixth, as Keynes understood, socialized investment requires an institutional architecture if it is to reshape economic production to meet these multiple needs. But—the seventh lesson—that architecture needs to be far more legible, responsive and decentralized than a Beveridge-era NIB; and to rest upon a computational-communicative digital-data matrix of a scale that not even Neurath could have imagined. Finally, it will need to support a radical reconfiguration of productive relations at the enterprise level and a reinvention of the character of money itself, to separate its investment, exchange and consumption functions.

To build such a system, we must first clarify the logic on which it rests—the theory of values that can serve as a foundation for a twenty-first-century socialism. In capitalism, as we have seen, firms operate under a regime of single-criterion optimization: they are structured to maximize profit. Every production possibility they face can be ranked on that single scale. Two investments that yield the same risk-adjusted rate of return are, within this framework, exactly equivalent in value—regardless of their social, ecological or moral consequences. This logic radically simplifies decision-making. Profit becomes the overriding measure of worth; every other consideration is treated as either a means to that end or a constraint to be managed. It is this structure that allows capitalism to function with a clear and impersonal coherence. In state-socialist systems, the objective shifted from profit to physical output growth, but the model remained one of constrained optimization. Planners sought to maximize total production from available inputs, measuring success in tons of coal or kilowatt-hours of electricity. As in capitalism, every decision was evaluated according to its contribution to this singular aim. Other goals—like ecological balance or work quality—as well as the people who advocated for them, were often suppressed. In both systems, economic coordination was built not to navigate among competing values, but to maximize a single one.

A multi-criterial approach demands a fundamental shift in how economic decisions are made. This is not a matter of ideology or psychology; it is a matter of logic. A system organized around multiple ends would treat goals such as economic security, sustainability, autonomy,

beauty and social connection not as constraints or instruments, but as intrinsically worthwhile. These goals are incommensurable: they cannot be measured in terms of a common unit. They are also non-compensatory: gains in one domain cannot fully offset losses in another. A better society would pursue each of these aims directly—unlocking a vast reservoir of practical knowledge currently locked up in corporations and directed towards profitability.¹⁰⁴ Workers and engineers, freed from the imperatives of financial return, could redesign production processes to support long-term ecological regeneration, improve the quality and meaning of work and develop infrastructures that sustain care and connection. Coordination would no longer mean maximizing one value at the expense of others but learning how to advance many goals—social and ecological—in parallel.

Yet the pursuit of multiple goals does not eliminate the problem that our resources are limited. Even with enormous productive capacity, we operate within a finite resource base. Trade-offs are therefore inevitable. Some values must be partially sacrificed to support others, and because the losses are not fully compensable, there is no optimal solution in the usual sense. Instead, decision-making must be understood as a process of composition: selecting particular ways of integrating multiple goals, where each composition reflects a different way of handling unavoidable trade-offs across intrinsically worthwhile aims. My contribution is to treat the resolution of this composition problem as the central task of economic coordination. By contrast to systems that prioritize a single goal and assume the rest will follow, a multi-criterial economy pursues multiple goals directly, in a way that requires choosing among futures that are constrained and, in many cases, mutually exclusive. A society built around dense cities and shared infrastructure looks very different from one built around decentralized eco-villages. An economy organized around widespread automation and minimal work leads to a different kind of life than one built around skill, craft and human involvement in production. These are not simply variations in emphasis; they are distinct ways of composing our aims into a liveable whole.

¹⁰⁴ On firms as organizations that coordinate complex knowledge through routines and accumulated know-how, see Herbert Simon, *Administrative Behaviour*, New York 1947; Edith Penrose, *The Theory of the Growth of the Firm*, Oxford 1959; Richard Nelson and Sidney Winter, *An Evolutionary Theory of Economic Change*, Cambridge MA 1982; and Giovanni Dosi, 'Sources, Procedures and Microeconomic Effects of Innovation', *Journal of Economic Literature*, vol. 26, no. 3, September 1988.

In a world of constraints and incompatibilities, we cannot pursue all values at once or in their fullest form. We can, however, pursue them in particular arrangements, where each goal remains present in a specific balance with others.

This structure can be formalized as a problem of multi-criterial optimization, but one of a particular type. As we saw in our discussion of Neurath's intervention into the planning debates, we must begin not with fixed value rankings, but with the recognition of value uncertainty: we care about many things, and their relative importance is indeterminate for us, as individuals and societies. Value uncertainty is further complexified by factual uncertainty. We rarely know in advance which effects will follow from which choices or what unintended consequences may emerge over time. Still, even without ranked preferences or weighted functions, many possible ways of organizing economic activity can be ruled out because they are clearly worse across all the dimensions. These are what are known as 'dominated' options. What remains is a non-dominated set: a field of alternatives, each representing a different way of balancing plural, non-compensatory goals.¹⁰⁵ No single objective function can sort them: they can be compared but not commensurated.

This is where the limits of technical reasoning become clear. Determination of the optimal solution set is a problem for technical reasoning to solve, but choice among the options in that set is not, since from a technical perspective, these options are equivalent in rank, no matter how different they are in content. Hopes that advances in computational power might overcome any need for social and ecological choice—making it possible to digitally plan the economy—fundamentally mischaracterize the problem, once we recognize the existence of multiple, non-compensatory social goals. The challenge is not simply processing more data. It is deciding what matters—negotiating trade-offs and choosing among possible futures. Reason,

¹⁰⁵ See Ralph Keeney and Howard Raiffa, *Decisions with Multiple Objectives*, Cambridge 1976; and Amartya Sen, 'Reason and Justice: The Optimal and the Maximal', *Philosophy*, vol. 92, no. 1, January 2017. When the solution set contains many possible solutions, additional rules can help narrow the set—such as eliminating options that, for any one value, fall below a threshold like half the best available outcome for that value. See Bernard Roy, *Multi-Criteria Methodology for Decision Aiding*, London 1996; and Valerie Belton and Theodor Stewart, *Multiple Criteria Decision Analysis: An Integrated Approach*, London 2002.

experience and collective deliberation will inform these choices but never entirely resolve them.

What enables such a society to move forward is not consensus on facts or values, but agreement on legitimate selection procedures. This much Neurath himself understood in the 1920s. Yet given the technical and value complexity of contemporary economies, we need to imagine these procedures rather differently than he did. Neurath assumed that navigating among competing futures required a choice between aggregated, centralized plans. The framework I propose generalizes the problem of plural goals and finite resources, making it possible to stage multi-criterial decisions at every level of the economy—from households and firms to associations and investment bodies—each drawing on forms of local knowledge specific to their domain. These decisions can be understood as instances of structured multi-criterial choice under the condition of a budget constraint. The constraint defines a bounded space of feasible action, internalizing the reality that not all values can be pursued in full. But it also structures the decision process itself, ensuring that competing aims be weighed and concrete priorities set.

Budget constraints play a crucial role in this framework because they separate what can be priced from what must be judged. The economic costs of pursuing any given course of action—measured in terms of labour, materials and time—can be priced; therefore they can also be added up and compared in terms of a single commensurable unit. But the benefits any economic course of action is meant to achieve—greater efficiency, restored ecosystems, improved working conditions—as well as its non-economic costs, cannot be reduced to a single metric. These must be evaluated in kind, according to the irreducible values they represent. This approach makes cost-benefit analysis, in the conventional sense, inapplicable. Yet it does not eliminate the need for technical reasoning. Across all domains of economic life, many options can still be ruled out as clearly ‘dominated’: they require more and deliver less. Among the remaining non-dominated options, however, no technical formula can determine which to prioritize. What remains are multiple spaces of value composition: of choosing how to balance among competing goods within a fixed resource envelope.

Because this framework is based on structured procedures for choosing among viable alternatives, it does not require prior agreement on

how many values there are, or how they should be defined, measured or prioritized. Values shape economic outcomes dynamically, through the decisions people make—under conditions of uncertainty and within the constraints of a shared budget. By contrast, other efforts to embed multidimensionality into economic coordination—such as Amartya Sen and Martha Nussbaum’s capability approach, the OECD’s wellbeing dashboards or the UN’s Sustainable Development Goals—depend on a limited, predefined set of values and metrics.¹⁰⁶ That is because they lack a decision-making procedure capable of navigating ongoing value disagreement. In the absence of such a procedure, they must fix the relevant goals in advance—agreeing on what counts, and how much, before action can be taken. The system described here makes no such demand.

It is based on multi-criterial optimization in conditions of uncertainty—about both facts and values—but allows values to emerge through the decision-making process itself. For this reason, it is fully *n*-dimensional: capable of accommodating any number of evolving, contested and newly imagined goals. People may support the same option for different reasons or revise their views over time in response to experience and debate. Values are not fixed inputs to the system. They enter into argument, take shape through selection and are redefined by the accumulation of decisions. What a society values, in this model, is not declared in advance; it is discovered in practice.

To make reasoned deliberation and choice possible, however, a multi-criterial society would need a detailed statistical infrastructure—joy through statistics, to borrow Keynes’s phrase—capable of representing many different social and ecological conditions and outcomes in kind, rather than in monetary terms. As Neurath foresaw, this apparatus would have to include social, ecological and emotional indicators alongside economic ones: carbon absorption, biodiversity loss, job satisfaction, heat exposure, hours of unpaid care, rates of loneliness. These data must be presented in forms people can interpret and use—statistical, visual

¹⁰⁶ See Amartya Sen, *Development as Freedom*, Oxford 1999; Martha Nussbaum, *Creating Capabilities: The Human Development Approach*, Cambridge MA 2011; OECD, *How’s Life? Measuring Well-Being*, Paris, various years; United Nations, *The Sustainable Development Goals Report*, New York, various years.

and narrative. Their purpose is not to dictate what matters, but to help people see what is at stake from a variety of perspectives.

As noted, the logic of structured multi-criterial choice described here can be applied at every level of the economy—each shaped by its own goals, forms of knowledge and resource constraints. Households face a consumption budget—beyond what is already guaranteed through universal basic services—and must decide how to allocate time, attention and resources across plural, non-compensatory aims. These may include economic security, autonomy, usefulness, rest, connection, respect. Rather than being substitutable, such values are held in tension; coordinating them requires ongoing judgement. Firms, likewise, operate within a production budget. As non-profit, public institutions, they are evaluated on their ability to balance multiple goals, like efficiency, sustainability, resilience, work quality, social justice and internal democracy. These trade-offs cannot be resolved by prices or algorithms alone. They require deliberation within and across work units, supported by accountability structures that reflect evolving standards of performance. Investment, finally, becomes the site where society makes decisions about its long-term direction. Investment bodies receive a fixed share of collective resources, issued not through private savings or taxation but via public monetary creation—an application of functional finance. These resources are not allocated to maximize financial return, but to advance shared priorities: for example, greening production, expanding care, deepening access, redressing past harms. Some proposals are ruled out as incoherent or ‘dominated’; others are selected through structured political procedures that weigh competing values within a collectively defined budget. In each case, coordination proceeds through composition—holding multiple aims together, within constraints, to determine what can be pursued, and in what form.

A multi-criterial economy offers a framework for making difficult choices. Its promise lies not in producing optimal outcomes, but in allowing people to consider viable futures, weigh what matters and decide together how to move forward. Across every level of the economy, this means accepting that value trade-offs are real and that they cannot be outsourced to markets, planners or machines. In our societies, as in our lives, things get better by confronting the choices we have to make, not evading them—by learning how to compose a strategy from

values that pull us in different directions. Progress, in this framework, becomes open-ended: not the maximization of one goal, but the ongoing capacity to bring to light competing possibilities and select among them. At the social level, that process will always be conflictual—and hence political. But it is through this politics that fuller lives become possible. Such is the logic of multi-criterial economics that underlies the institutional design to be elaborated in Part Two.