



## Network Pragmatism: Towards an Open Social Economy

Yochai Benkler

Democratic market society is facing a crisis. For forty years, the nation state has eroded as the central organizing principle of economy, identity, and institutions, losing its centrality to competing sources both externally and internally. Externally, globalization, cosmopolitanism and universal human rights, and internationalism shifted economy, identity, and polity from the state to the regional and global. Internally, the role of the national public fragmented and shrank along the same three dimensions. Deregulation and privatization (economy), pluralism, civil rights, and individualism (identity), and private ordering through contracts and property (delegating to private actors the domain of polity – use of coercion to achieve social order) mirrored the internationalizing effects. The economic nationalism embodied by the Trump and Brexit victories, as well as by the ascendance of more explicit majoritarian authoritarianism as in Russia, Turkey, or Hungary, offers an internally coherent alternative by inverting all three dimensions of markets, identity, and polity.

The newly emerging economic nationalism is a fundamental rejection of the Davos Consensus: an intellectual congruence and political détente between neoliberalism, rights pluralism, and postmodernism that typified the United States and Britain since the 1970s, with clear echoes in other economically advanced democracies. Neoliberalism emphasized the free movement of goods, capital, and labor, freed from the fetters of social and national commitment, promising economic dynamism in exchange for economic security and enhanced consumer sovereignty and entrepreneurial freedom in exchange for solidarity. Cosmopolitanism and pluralism offered tolerance and celebration of difference and individual self-creation in exchange for the solidarity that came with the imagined community of nationalism and easy insider-outsiders binaries as the foundation of collective identity. Internationalism offered the promise of world peace and stability in exchange for loss of meaningful popular participation in many aspects of political self-governance. The economic nationalism of what we might call “the Third Right” (following the first right of Eisenhower, Churchill, Adenauer and De Gaulle and the second right of Reagan, Thatcher, and the Washington Consensus) inverts those tradeoffs, while offering its adherents a new sense of identity and self-empowerment – a solidarity against the moral demands of “others” – migrants, women, minorities – and against the actual overwhelming power of international institutions and elites – trade treaties and the EU.

What is the alternative to economic nationalism? How do we re-embed markets in social relations, without falling back onto patriarchal, ethno-nationalist categories of solidarity as do the economic nationalists? How do we preserve the anti-authoritarian, pluralistic, open questioning, spirit that flourished in open societies since the 1960s without leading to the profound epistemological and identity crisis that seems to play such a central role in the re-emergence of xenophobic tribalism and the search for tribal authority figures typical of the politics of economic nationalism? And, how do we translate these abstract ambitions into a working policy agenda?

In a nutshell, the story is that from the beginning of the second decade of the twentieth century, economy and polity were organized around what one might call “iron cage progressivism”, following Weber’s study of bureaucracy and the optimistic progressive bent of the range of practices that has been variously termed “high modernism” or “modernism”, progressivism, or managerialism. It covered Taylorism and Fordism in industrial organization; the administrative state and Keynesianism in Anglo-American systems, or the Social Market Economy or *dirigisme* in Germany and France, respectively. The core epistemology was based on the authority of expertise, and the possibility of knowing all the moving parts of a system so as to be able to standardize practices and manage them efficiently – whether in the system of economic production or political organization. By the 1960s and 1970s, this approach had come under criticism from both the left and the right. Epistemologically, Hayek’s critique of managerialism, on the one hand, and the post-modern critique of knowledge and power, on the other hand, challenged the neutrality and coherence of expert management on which the entire edifice was built. Politically, the civil rights, women’s rights, antiwar, and student movements undermined the claims of legitimacy of the major sources of bureaucratic and patriarchal authority in the 1960s. The Great Inflation of the 1970s, in turn, undermined the authority of governments who had shepherded the post-War recovery and the “Golden Age of Capitalism” or “Glorious Thirty”, retreating before a sustained neoliberal critique of command and control economic management and an economics profession that used mathematically-precise simplifications to justify deregulation and privatization. Across a range of domains, individual, market-based, consumer-sovereignty-focused policies and practices emerged to create a new

model of organizing economy and polity. If you will, 1946 collapsed under the combined weight of 1968 and 1973.

The resulting privatized, deregulated, globalized, and financialized economy, and pluralistic, cosmopolitan, and internationalized polity, underwrote dramatic increases in inequality within the wealthiest economies, particularly in the United States and Britain, alongside a significant reduction in global inequality as Chinese, Indian, and other emerging-country middle-classes benefited from global trade. It also ushered in a global financial system that has been prone to repeated boom and bust cycles, by contrast to the relative stability of the post-war decades; lower productivity growth in the wealthiest economies, despite rapid technological development in information and communications technologies; and increasing economic insecurity for large working populations, whether through rising proportions of contingent employment in the workforce or high rates of unemployment. These trends culminated in the financial crisis of 2008, the Occupy movement in late 2011, and then the broad rejection of elite opinion that characterized the success of both economic nationalism, in the form of Donald Trump in the United States and Brexit in Britain; and left-oriented, anti-austerity political parties, as with Syriza and Podemos in Greece and Spain respectively, as well as the broad support for older-style socialists like Jeremy Corbyn and Jean Luc Melanchon, as well as Bernie Sanders in the United States. Even where the status quo did gain victory, it was through the enthusiastic rejection of status quo parties represented by the utter failure of both major traditional parties in France and the subsequent electoral success of Emmanuel Macron.

Economic nationalism leapt into the chasm created by the crisis, with a communitarian-authoritarian epistemology, a corporatist national economic order, and an illiberal-majoritarian political order. We know the truth when our tribal leaders reveal this to us. The authoritarian communitarian source of belief is being increasingly well documented.[1] The economic program is corporatist – integrating corporate decision-making into national decision-making in order to assure sufficient economic security to stabilize the polity without fundamentally altering the conditions of production, and therefore preserving the power of the economic elite in exchange for a larger share of the rents going to workers who are “in the tribe”. National identity trumps class interest or conflicts between worker and employer. And the political order is charismatic leadership, using popular support as the primary source of legitimacy to overcome the resistance of the technocratic elites that were so central to the prior orders – the media, lawmakers, and scientists – who are subjected to attacks precisely due their claim to provide a pre-political, objective knowledge framework that precedes and transcends politics and tribal belief systems and shared narratives. The model of the political order is visible both in the more directly authoritarian-majoritarian regimes of Erdogan, Putin, or Orban, but the effort to establish these patterns is evident in the early months of the Trump Administration as well.

Three other trends or intellectual approaches for shaping knowledge, economics, and politics in the coming decades are visible in the sphere of competing ideas. The first approach we might call “nudge progressivism”. [2] Its epistemology is consistent with iron cage progressivism: scientific inquiry, by experts, leads to knowable best practices, which can then be designed into “choice architectures” that will see most of the population unconsciously following paths that will make them better off. Its major deviation from iron cage progressivism is its rejection of forcing rules (hard shoves, as opposed to gentle nudges), aimed to preserve choice in markets. Its major deviation from neoliberalism is its progressive and ameliorative normative orientation, and its acceptance of systematic deviations from self-interested rationality as foundational fact of life. Its weakest spot is that its method – behavioral science – undermines the coherence of its dependence on, and respect for, choice as a corrective for the failures of Iron Cage Progressivism. If preference and choice are endogenous to context, then the freedom of agents to choose within a context designed to lead them to a given action is neither a reliable corrective for errors in the design of the choice architecture nor a mode of respecting autonomy of the majority of those who act within it. Nudge progressivism seems to suffer both from the weakness of classic iron cage progressivism – the risk of error of those in authority – and the weakness of neoliberalism – its utopian dependence on choice in markets as both an epistemological framework and a locus of freedom.

The second approach includes both techno-libertarianism and techno-liberalism (differentiated by the role of ameliorative policies aimed to include the poorest or otherwise weakest in society in the abundance it promises, and how significant a role the state retains in countering market power).[3] Its core feature is that it seeks to maintain the status quo of the neoliberal-pluralistic détente of the past forty years – minimizing government intervention in the economy or personal life choices – while turning to technology to (a) alleviate want, and therefore economic insecurity and (b) to improve democratic participation so as to increase legitimacy. Its most ambitious social reform program is universal basic income, which is part of a broader aim to separate remunerated work from the material necessities of life, but its core mode is to posit that technological solutions can and will outperform institutional-political solutions in both the economic and political domains. Its political ambition is to leverage technology to overcome the limitations of a participatory democracy.[4]

Sketching the elements of the third approach is the core purpose of my essay here. It is anchored in social practices and theoretical work on networks, commons, cooperation, and complexity, and in institutional analysis of capitalism. It insists that diversity of institutions, motivations, organizational forms, and normative commitments is the normal state of affairs, and that there is no convergence on an efficient equilibrium on any of these dimensions. It sees markets as no less arenas of power than politics; that economic security and equality are integral to the institutional design of markets, and that the two cannot be separated, analytically or practically. It is based on a quarter-century of studies on the commons, learning networks in innovation and knowledge and norm diffusion in social networks, on cooperation in evolutionary biology and the behavioral sciences, on collaborative practices in management science, and on the dynamics of complex systems, alongside the same quarter-century of practices of the Internet standards development, the Free and Open Source Software (FOSS) community, and Wikipedia. I call its epistemology “network pragmatism” because it revives the core commitment to fallibilism introduced by C.S. Peirce at the foundation of pragmatism, an epistemology that gives a central role to continuous learning and updating of beliefs through cooperative reason-giving typical in learning networks; and its currency is practical applicability in observable practical contexts, and hence a return to classical pragmatism. It is an epistemology typified by the practices of “rough consensus and running code”[5] of the Internet Engineering Task Force, of “given enough eyeballs, all bugs are shallow” of FOSS,[6] or the Wikipedia “Ignore all rules” rule, which states “If a rule prevents you from improving or maintaining Wikipedia, ignore it”.[7] It argues that “the network” framing is the best current mechanism for understanding social processes without getting bogged down in the standard agency-structure or micro-macro dynamics, by preserving both individual action and structural or macro-scale relations as central determinants of social processes. At a minimum, to borrow Padgett and Powell’s words, “in the short run actors make relations, but in the long run relations make actors”.[8] This approach has been translated in many domains into practical policy. In some areas, where studies were early and the policy implications clear, models based on network learning and the commons offer clear alternatives to regional development models, away from trade-secret or non-compete agreements toward more regional-cooperative models. As I have outlined elsewhere, it suggests directions for institutional designs in areas as far ranging as wireless spectrum policy and police reform.[9] In most areas, from labor economics to monetary policy, translating this framework into a full-fledged policy program will require new, extensive work.

## **From Iron Cage Progressivism to Neoliberalism and Postmodernism**

### *Progressivism, Managerial Capitalism, and the Administrative State*

The first seven decades of the twentieth century were marked by the adoption, across the industrial and industrializing world, of a class of solutions to problems of social order and economic organization based on hierarchical, scientific, formally standardized processes. The story has been told well, in diverse and detailed forms, by many, and I will not attempt to summarize all the perspectives here nor do justice to the full richness of the analyses. Whether focused more recently on “high modernism” and the post-World War II era,[10] on the influence and expansion of Taylorism and Fordism from just before World War I,[11] followed by the adoption of national-level planned economies for wartime production by both Germany and the United States and the influence of these practices on inter-War Europe from the young Soviet Union to the Fascist and Nazi regimes in Italy and Germany,[12] or on earlier foundations in the emergence of managerial capitalism in response to the speed and scale of production as rail travel and telegraph increased speed, distance, and scale of production,[13] the basic elements of the framework are not fundamentally in question.

The basic epistemological framework is confidence in the possibility of controlling and measuring – knowing precisely – all the information about actions, relations, and consequences in human systems, so as to determine the optimal calibration of the human and social system being managed. Fredrick Taylor’s theory of scientific management, published in 1911, was revolutionary in this regard. Taylor engaged in detailed motion studies, seeking to break down every motion of every worker in a factory down to the precise motions each hand, leg, back rotation needed to make to be more efficient; the precise part of the shovel that should be loaded, and so forth, so as to prescribe a precise order of motions that would maximize the employee’s efficiency at a precisely defined task.[14] As Maier showed in detail, the revolutionary implications for productivity inspired adoption in diverse settings throughout Europe, including by Lenin after the revolution.[15] Three years later Henry Ford opened the first assembly line factory, adding two major elements to Taylor’s approach. First, Ford embedded the Taylorist control approach in a technological system that “naturalized” and systematized it: the design of the line itself would now regulate the precise motions available to workers and their speed. Second, Ford revolutionized the pay model, so that workers were paid enough to become consumers, as well as producers, of the products they bought – thereby dramatically increasing the size of the market and the welfare of the employees. The model increased productivity to a degree that overwhelmed competing models of production, however some found it dehumanizing.

The epistemological framework – that the world can be known in precisely measurable, standardized units and is amenable to rational planning aimed to optimization – is best managed through the authority of experts deployed through hierarchical control, with information flowing upwards and commands flowing downwards, generalized across fields of social order. From Burnham’s “White City” at the Chicago World Fair of 1893 and the Chicago Regional Plan of 1907 and Le Corbusier through Robert Moses’s grand ambitions, it marked architecture and urban planning for decades[16] until the revolution we associate with Jane Jacobs in the 1960s.[17] Scott documented its appearance in practices from 19th century Prussian forestry through Soviet collectivization to villagization in Tanzania from 1973 to 1976.[18] It was the basic epistemological and organizational framework that drove classical Keynesianism and the detailed information collection and control that regulatory agencies in the United States sought to apply at their height from the New Deal to the 1970s. It created a shared knowledge frame that made it seem plausible for AT&T to claim that it must be able to prohibit companies from selling a “Hush-a-phone”, a plastic cup to cover the mouthpiece of a Bell Telephone for private conversation in the workplace, because only by controlling every element of the system could they guarantee universal service at sufficient quality to every subscriber. It was the essence of Weberian bureaucracy, and the absolute necessity of this kind of formal rationality imposed in hierarchical formal organizations was forced upon him by the logic of competition from those organizations that did adopt it. In this, he shared the sense of inevitability with Schumpeter who, twenty years later, wrote that monopoly, large scale organizations, both commercial and state, were the most productive, and hence ascendant, form of organizations. It was only in the 1980s that significant work challenged the unique fitness or productivity of the standardized, hierarchical mass production models that came to dominate most of the mid-twentieth century.[19] But by then, Western democracies had undergone a major epistemological crisis, and the political and economic organizational strategies, institutions, and social norms had begun a radical departure from the centralized hierarchies that had governed them in the first seven decades of the twentieth century.

The authority structures from the political and economic domains also transposed themselves to the kinship or reproduction system. Rosie the Riveter emerged as an image of women’s empowerment through war production outside of the home, but the post-war period saw a sustained effort in popular culture to re-create a long-past culture of domesticity.[20] The “company man” was also the “family man”, earning a family wage to support his wife as homemaker. The effort to recreate the traditional patriarchal framework as a central pillar of society after it had been rocked by two world wars, a depression, and the brief interwar period that saw women’s suffrage and the roaring twenties’ rejection of Victorian culture, was a reflection in the kinship domain of the authority structure that had come to assert itself in economy, society, and culture more generally. It also projected back onto the economy, as the effort to send women back to the home and assure a high enough male salary to support a traditional family halted the shortening of the workday and workweek that had been a central goal of the labor movement for over a century.[21] In the cultural system, the rise of mass media, the professionalization of news, the emergence of the Hollywood star system, and in particular the emergence of television, concentrated the production of culture in a relatively small set of actors who became the arbiters of what people knew, and how society at large was seeing itself. The technologies that typified the era were the assembly line, generalized electrification, widespread adoption of the automobile and national highway systems, and a broad adoption of civilian flight. Alongside them, radio and television became the defining technologies of both sense making and politics.

*Neoliberalism, postmodernism, the rights revolution and the transition to oligarchic capitalism in a pluralist oligarchy*

Rational planning under conditions of standardized knowledge and production has its limits. Human systems, as it turns out, are imperfect from the start and decay over time. Error and imperfection accrete, leading systems that do not have mechanisms for self-correction and self-healing to fail. The progressive impulse of high modernism reached its apogee in the 1950s and early 1960s as its authority structures and epistemological foundations were challenged left and right, as decolonization, the Vietnam War, the Great Inflation and globalization exposed the brittle inflexibility of hierarchical planning models of social organization.

Hayek’s critique of the planning impulse was anchored in liberty, and fundamentally political, not economic. But it was founded on an epistemological challenge to the possibility of centralized, hierarchical knowledge actually describing the complexity that is the social and economic order, a complexity that meant that efforts to standardize social processes sufficiently such that they can be known by the state, or by the centralized planners, would necessarily have to constrain the human spirit and social behavior. While the theory was fundamentally a statement of political morality, it included a core economic claim. The world was too complex for any person or small group of persons to know. Organization under complexity could only emerge from self-organization by individuals adapting to their circumstances in response to local signals. And these signals were prices in a competitive market. “The more complicated the whole, the more dependent we become on that division of knowledge between individuals whose separate efforts are coordinated by the impersonal

mechanism for transmitting the relevant information known as the price system”. [22] Planning necessarily failed because it always lacked the information necessary to make sure all parts behaved as they should. It could limit people’s choices if it could know what they were up to and when – that is, only if it imposed authoritarian control over what people did. As Hayek put it, “Economic liberalism is opposed however, to competition’s being supplanted by inferior methods of coordinating individual efforts. And it regards competition as superior not only because it is *in most circumstances* the most efficient method *known*, but even more because it is the only method by which our activities can be adjusted to each other without coercive or arbitrary intervention of authority”. [23] Over the next four decades, neoliberalism would develop into an intellectual and political movement, building institutional anchors like the Mont Pelerin Society, the Free Market Study Program at Chicago, or Henry Manne’s Law and Economics Center, and the think tank system from the American Enterprise Institute and the Foundation of Economic Education, to Heritage and the Cato Institute. [24]

The central role of neoliberalism in the dismantling of the post-War mixed economy settlement is well documented and needs no significant additional detail here. [25] Changes in labor law and the assault on unions in the United States and the UK led to declining union power, which played a central role in weakening middle-income wages, [26] deregulation hit union jobs particularly hard, as rents from less competitive markets that had been shared with better-represented workers were shifted to markets where workers could not share in the rents. [27] Banking and financial deregulation provided the changes that allowed for financial industry income to create one part of the escape of the 1%, while the ascendancy of agency theory and shareholder value provided the intellectual foundation of the rise in income share by the largest group of people – managers and executives. [28] Expansion of free trade rules and financial flows allowed for the emergence of global supply chains, and the fissuring of the workplace as production moved to low-cost countries, while casualization of labor in older industries, and the feminization of labor in newly-growing service sectors weakened the bargaining power of labor and shifted the norms of management about what counted as a reasonable benchmark salary for workers, as opposed to managers. These ideological shifts were stoked in the United States, at least, by a significant realignment of political strategy in the business community, and the rise of what we might think of as “Organized Business” learning to harness its economic might to the political domain. [29]

Much of the change, and most current explanations, focus on these changes on the political right. It would be a mistake, however, to imagine that everything that changed was purely a function of shifts towards the ideological and political right. Parallel to Hayek’s epistemological critique of iron cage progressivism was the rise of the New Left. Students who saw themselves, rather than the working class, as the vanguard of social change, embraced individualism, not as egotism but as authentic self-expression: “the object is not to have one’s way so much as it is to have a way that is one’s own”. [30] The rejection of traditional sources of identity and authority is nowhere clearer than in the Port Huron’s statement that “Personal links between man and man are needed, especially to go beyond the partial and fragmentary bonds of function that bind men only as worker to worker, employer to employee, teacher to student, American to Russian”. Turning away from the abusive failures of Soviet communism and the patent racism of the American South that the Civil Rights movement was pushing to the forefront, the students were rejecting both left wing authority structures and the benevolence or coherence of the major mainstream institutions of iron cage progressivism that nonetheless tolerated racism and replaced material progress for authentic meaning.

With this deep skepticism about authority acting as a backdrop, Thomas Kuhn’s groundbreaking *The Structure of Scientific Revolutions* in 1962 [31] offered a foundational epistemological critique of science itself, the ideal model of what formal, value-neutral knowledge of the world that was a precondition to iron cage progressivism required. The deeply social and political nature of knowledge became the foundation of the field of Science and Technology Studies, and its intersection with other dimensions of oppression, most obviously race, exploded in the controversy over E.O. Wilson’s *Sociobiology*, and the Stephen Jay Gould’s public rejoinder in *The Mismeasure of Man*. In 1973 the American Psychiatric Association removed homosexuality from the Diagnostic and Statistical Manual of Mental Disorders (DSM).

The deep anti-establishment drive of the new left was translated to economic policy most directly by Ralph Nader and the consumer movement, developing the left parallel to the neoliberal criticisms of the core institutional anchors of the post-war mixed economy settlement. Nader’s attack on the automobile industry’s safety standards in *Unsafe at Any Speed* and subsequent battle with GM was followed by the creation of the Nader Raiders, a program which saw hundreds of law school students working to study the ways in which government agencies, beginning with the Federal Trade Commission, were failing to do their jobs and stand up to business interests. The individualism of the New Left could programmatically be translated into consumer sovereignty, rather than worker solidarity, as a new flag for the economically-oriented left. And, indeed, the consumers’ movement was at the forefront of the battle to deregulate the airline, trucking, and banking industries, in the first two cases in direct conflict with the major unions who stood side-by-side with their employers. [32] The New Left, unlike the neoliberals, did not create an alternative “objective” epistemology that

could replace the standardization of knowledge and authority-based claims of truth that were foundational to iron cage progressivism. Embracing critique and the practice of exposing how knowledge is used to legitimize power in social institutions, the left did not succeed in developing an epistemological framework that could break out of the confines of the academic discussion and turn to policy and politics. As we saw in law, the neoliberal-inspired law and economics movement quickly translated its core claims into prescriptions for every corner of the law, while the new left-inspired critical legal studies movement offered sophisticated and cogent critiques of law, but much less by way of programmatic legal reform. Programmatic innovation on the left shifted instead to three other groups: feminists, civil rights and critical-race scholars, and rights-liberals.

In the immediate post-war era the Democratic Party depended on a political alliance that simply could not survive the 1960s (and it shouldn't have). The core constituency was working white men represented by unions, and the core geographic alliance included the Southern Democrats committed to defending the racial caste system of the South. As Ira Katznelson's showed, the political necessity of gaining the support of Southern Democrats led both the New Deal and the Fair Deal to either formally or practically exclude African Americans from the foundations of the rising middle class in mid-century America – federal labor and employment legislation, Social Security, the G.I. Bill, and support for home mortgages, where most of the middle-class built its assets.[33] No less importantly, the old left was male-centered, and focused on re-asserting the traditional models of family alongside the traditional focus of a male-centered view of the ideal worker. By the 1960s and 1970s, neither the Civil Rights Movement nor the Women's Movement was willing to be kept waiting by a left still dominated by the concerns of white men. There was deep and broad theoretical and programmatic work to be done to dismantle the institutional inequality of half the population. Whether it took a more liberal form of litigation under the workplace discrimination prohibitions of Title VII of the Civil Rights Act to achieve equal hiring, retention, promotion and pay spearheaded by the NOW Legal Defense Fund then led by Ruth Bader Ginsburg, or more radical forms of sex domination, exemplified by the work of Catherine MacKinnon, both specific, as in the campaign against hostile workplaces or regulation of pornography, or general, about the ways in which society was structured from top to bottom around patriarchy.[34] Beyond theory, women's labor force participation and college matriculation and completion rates increased, making economic dependence of women on men a less prevalent characteristic of family structure. The Pill has generated extensive commentary and controversy, but it is difficult to argue that it did not interact with the ideological changes and social mobilization of the women's movement to help shift power over reproduction to women, allow many women to delay marriage and control childbearing, and at least in some social-cultural and class contexts, and where institutional changes in both family and employment law made it possible, use those powers to renegotiate the terms of reproduction and power in both family and work. Other dimensions of technology also played a role, as the National Organization of Women's founding Statement of Purpose in 1966 quite clearly evokes: "Today's technology has reduced most of the productive chores which women once performed in the home and in mass-production industries based upon routine unskilled labor. This same technology has virtually eliminated the quality of muscular strength as a criterion for filling most jobs, while intensifying American industry's need for creative intelligence. In view of this new industrial revolution created by automation in the mid-twentieth century, women can and must participate in old and new fields of society in full equality – or become permanent outsiders".[35]

Programmatically, the political (as well as intellectual) effort of the left shifted from a focus on the institutional determinants of labor markets and of the structure of markets, and reoriented toward equality of opportunity to come to various markets without hindrance, as well as to reshape power in the domestic and political domains. Equal opportunity in employment, education, and housing markets, and searches for structural racism and sexism in these markets and social settings were central. There certainly were examples of alliance and alignment between the civil rights movement and worker advocates,[36] but the dominance of the focus on worker and class-focused political gains could not be maintained. The consumer movement and the environmental movement remained the two major forces focused on the economy, but these developed pro-competition, pro-market models of obtaining their desired results, and abandoned the project of understanding how markets fundamentally drove inequality. Whether in the form of pro-deregulation efforts of the consumer movement, or of market-based mechanisms to achieve emissions reductions through tradeable permits, the programmatic efforts of the left offered models oriented toward leveling the playing field while assuming that the market itself would work best once we had corrected for unfair initial endowments, discrimination, and failures of competition.

The right and left critique of the post-war settlement converged on several core pillars. The neoliberals challenged the central role of expertise by arguing that complexity of human systems was too great to be known, and that only choice in free markets will converge on the best decisions regarding who should do how much of what with what resources. The left challenged expertise as socially-constructed, reflective of power and privilege, rather than truth value in any objective sense. Participation, rather than authority, could lead to revealing the truth. The right emphasized the rational actor operating in pursuit of self-interest.

The left emphasized individual self-actualization. Both rejected the central role of then-existing solidaristic forms that typified the post-war settlement – nation, party, unions, associations, and so forth – in favor of the individual. Privatization and globalization could co-exist comfortably with pluralism and cosmopolitanism, because both insisted on freedom from incumbent solidaristic forms of social relations, particularly state-centric social relations. From the liberal perspective, the battle over equal opportunity in markets and education was anchored in a conception of markets as fundamentally rewarding merit as long as people's merit was judged fairly. John Rawls lexically prioritized political rights to social and economic rights, and his Maximin principle focused on redistribution toward the very poorest at levels that would make those very poorest as well off as they could be. This theory of justice put welfare economics in the drivers' seat of deciding on incentive effects, growth, and efficiency and the extent to which a given redistribution policy would in fact benefit the poorest. Critically, it also meant that policies that extracted welfare from the middle classes to the re-emerging oligarchic class were exempt from the theory of justice, as long as it did not make the worst off worse. Ronald Dworkin and Bruce Ackerman offered theories of justice that constrained social insurance programs to accidents of birth and circumstance, leaving those who had made bad choices to bear the burden of the market consequences of these choices. The implication that markets were, as long as opportunity was in fact equal, representations of merit rather than power in social relations was a necessary precondition to any of these theories being an acceptable theory of justice. The market-oriented skepticism of the administrative state on the right and the academic work on the failures of collective action was matched by a deep anti-establishment sentiment on the left and the detailed investigative activism exposing cronyism and complacency in regulatory agencies. In the critical period of the 1970s, this congruence underlined the embrace of deregulation. In the 1970s in the United States deregulation was led by Democrats, particularly Ted Kennedy and Jimmy Carter, and while the 1980s saw the Reagan and Thatcher revolutions take this effort to new heights, the Clinton and Blair revival of the Democratic and Labor parties in the 1990s involved in large part adoption and synthesis of the neoliberal economic program, with a continued heavy emphasis on market-based reforms moderated by some greater redistribution, and a stronger emphasis on environmental regulation and consumer protection, on equal opportunity for women and minorities, and on investment in education, but less on a revival of workers as a powerful player in the economic arena.

While the congruence between neoliberal, liberal, and new left ideas created a political and ideological space for institutional transformation in the 1970s, the programmatic details of the institutional framework for the economy – legal and social norms – were supplied by the neoliberal and business-political sides. These included banking and securities deregulation and the deregulation of international financial flows that underlie financialization; [37] weakening of labor and employment protections; [38] lowering top tax brackets; [39] deepening free trade agreements that allowed for greater use of offshoring, alongside changes in employment law that enabled greater use of outsourcing and undergirded the fissuring of the workplace and the rise of contingent and alternative employment arrangements; [40] the rise of superstar salaries, shareholder value, and changes in associated social norms about levels of compensation and ratios of compensation between managerial and financial professionals and everyone else; [41] and a wide range of other detailed regulatory changes. [42] These changes, feeding back to each other as differentiation of political power, ratcheting dynamics in compensation norms, and social norms among managers, financial professionals, and workers generally ratcheted up the expectations and actions increasing the top 1%, and ratcheted down the bargaining power, security, and expectations of people in the middle and bottom of the income distribution. The result has been the dramatic pattern of inequality we observe in the United States and the UK, and with substantial variation, elsewhere among advanced economies. Nonetheless, the rough consensus among global elites, which we might call the Davos Consensus, translated in these two countries more than anywhere else into what might best be described as *pluralist oligarchy*: a political system governed primarily by economic elites, oriented toward constructing an institutional setting that enables the wealthiest centile to dramatically increase its share of national income, the economic elite to reproduce itself and legitimate its status as merit, and that implements a range of liberal pluralistic reforms that substantially reduced legal and explicit racism and sexism and increased individual self-actualization in the domains of reproduction and culture.

Technologically, several innovations supported globalization, financialization and the reorganization of the family. For globalization, the primary pertinent technologies were the shipping container, which dramatically altered the cost and speed of international shipping, the barcode, which made supply chain management on a globalized level possible, as well as permitting a substantial increase in the size of firms now better able to manage internal flows as well as external supplies, [43] and the coaxial transatlantic cable that dramatically increased the capacity and fidelity of international communications flows. For financialization, the personal computer and electronic spreadsheet made implementation of new theories in finance developed in the 1970s practical in the 1980s – when the leveraged buyout and collateralized debt obligation fundamentally altered the global financial markets, and higher-capacity cables enabled the networking of global financial markets. Both trends contributed to casualization of labor. Universal electrification and running water in the pre-War

decades made possible a range of domestic-labor displacing technologies – refrigerators, clothes washers and dryers, dishwashers, and ultimately the microwave oven – that reduced the number of hours necessary for domestic work, and correlated with the period of rapid expansion of labor force participation by married women.[44] The Internet, while high in everyone’s mind today, became widely adopted by the public, as well as private companies, only relatively late in the process of the emergence oligarchic capitalism, and at the very tail end of the process of top 1% escape, and almost two decades into the trend of median-income stagnation in the United States.

The PC and spreadsheet did not give us a society with oligarchic capitalism any more than the steam mill gave us a society with industrial capitalists or the hand mill, feudal lords. Technology is neither wholly autonomous with regards to the social relations from which it comes, nor is it strictly deterministic of the social relations it facilitates. The PC, electronic spreadsheet, barcode, and shipping container, co-axial cables and domestic appliances made certain practices feasible that were not practicable before. The fact that countries at the same technological frontier, like the US, Germany, and Japan, experience vastly different changes in individual and organizational behavior around the introduction of these technologies strongly suggests that it is the interaction of technologies with institutions, norms, and other social relations that shapes how a society changes. Technology makes some things easier to do and others harder. Things that are easier to do are more likely to get done by someone, and things that are harder to do are less likely to be done. It can make some relationships, organizations, and institutions easier to pursue, and others harder. In a challenging environment – be the challenges natural or human – it can make some behaviors obsolete by increasing the efficacy of directly competitive strategies. However, as among practices not rendered impossible by the adoption or rejection of a technology different patterns of adoption and use can result in very different social relations that emerge around a technology. Oligarchic capitalism, to the extent that it depended on these technologies, was only possible within a certain institutional framework, and a certain set of social relations – as I argued here, changes in social relations that stretched across economy, polity, kinship and culture. This doesn’t make technology inert and wholly determined by social relations. It does exert a sticky set of constraints on some ideas or institutions. However determined aristocrats may have been to preserve horse-drawn carriages, the internal combustion engine would have devastated societies that hewed to those practices whenever the two came in conflict. Technological development is only partly autonomous, in the way in which science and art are partly autonomous. Technology is developed within communities of practice with their own internal norms and culture that sometimes resist or subvert other social relations within which they are embedded. Nothing captures this fact more clearly than the anarchistic design of the Internet that developed exactly in the period of the rise of oligarchic capitalism. And yet, technology is also a product of its time – as we see now that companies and states have caught up to the Internet and are taming its decentralized design into a vastly more tightly controlled network, with many gateways and toll booths that the original developers of the technology would not have desired or intended.[45] Certainly, this view of technology is fundamentally inconsistent with the idea that “skills-biased technical change” is the core driving force behind rising inequality of the past forty years. For technology, through its effects on the relative value of higher and lower skilled workers, or routine and non-routine skills, to have been the primary driver of inequality, markets would have to be such that they reflect relative value more-or-less efficiently, while technological change is autonomous and exogenous to these markets. Neither of these assumptions are plausible.

### **Network Pragmatism, Social Relations, and the Open Social Economy**

The neoclassical economics underlying at the epistemological foundation of neoliberalism predicted that the Internet, WiFi, Free and Open Source Software (FOSS), Wikipedia, voice over Internet Protocol, and so many other facts of life were impossible. By design, the Internet Protocol is an open access commons: anyone could transmit anything they wanted on a first-come, first served basis, and pricing could not be used to optimize transport. Proposals for replacing TCP/IP with an alternative, ATM, that could assure that prices could be used to prioritize traffic failed,[46] even as Bob Metcalf, inventor of Ethernet, predicted in 1996 that the Internet was about to catastrophically collapse because there was no packet pricing, and Bill Gates predicted that within three years (of 1995) quality of service assurances through ATM would be available. [47] No practicing economist in 1995 would have predicted that the Apache Web Server, developed by a network of volunteers and released under a license that allowed anyone who wanted to copy it and sell it to do so, would become the dominant infrastructure of the World Wide Web over the coming two decades. FOSS was simply incomprehensible to the economics discipline of the mid-1990s.[48] No less so Wikipedia or peer production more generally. Two of the most prominent information economists in the world described, in 1998, why Microsoft Encarta was the great new threat to Britannica.[49] A former chief economist of the FCC wrote confidently that spectrum commons, like WiFi, would necessarily fail because in the absence of pricing to clear competing uses, “the brain surgeon cannot read the life-or-death CT scan because the Internet backbone is clogged with junk e-mail”.[50] *Eppur si muove*.



Under iron cage progressivism, a telecommunications network was either owned and managed by a government-owned monopoly, as in most of the world, or was a monopoly service, as in the United States, following President of AT&T Theodore Vail's famous motto: "one system, one company, universal service". At its best, it meant a monopoly that could fund Bell Labs and employ some of the greatest minds of a generation. At its worst, it meant years of waiting for a phone line or service for a broken telephone, all at very high prices that made long-distance calls, much less international calls, a luxury. To deal with the complexity of managing the communications needs of millions of people over time, the company owned all the wires, local and long distance. The company owned all the telephones that were connected to the network. It issued a standardized set of tariffs, or services and prices, and then reported on these (in the US) to a regulator, who would demand detailed accounting for the costs of the various services and approve rates. The regulator would negotiate with others around the world what the tariffs for international connections would be. And so forth.

After the 1970s, the neoliberal answer was to push for deregulation and competition. Uncertainty could be solved not through centralized, hierarchical control over all aspects of the network, but by altering the legal environment to make possible robust competition among competitors in as many aspects of the communications service as possible. In the United States, that meant the breakup of AT&T and vigorous antitrust enforcement to force it to compete fairly. In Europe and Japan, it meant privatization of the previously nationally-owned telecommunications company, and vigorous engagement in introducing competitors. In both cases, the core shift was from imagining technocrats who can know all there is to know at the top of a hierarchy – national and corporate – to imagining consumers who know what they want and are able to encode what they want into willingness and ability to pay, and business executives who can read these signals and design the system that will answer those desires. The shift from spectrum licensing practices between the 1920s and 1990s, to the spectrum auctions and flexible spectrum allocations of the 1990s to the present follows an identical intellectual path.[51]

The Internet was not, however, invented or deployed on either the iron cage or neoliberal model. Instead, it reflected an engineering commitment to create the conditions for a community of practice to experiment and learn openly what to do with the system. It departed from both prior epistemologies in two critical ways. First, the core protocol, TCP/IP, was designed to be agnostic as among all uses and optimized for none. It embodied the "end-to-end" principle – anyone who wants to use the system has to take its core design into account: the network can recognize packets of information and destination addresses, and offers nothing more than a best efforts service for each packet equally. Everyone who wants to use the network has to design their application so that it is robust to this basic agnosticism about what the network is for, and implement all the desired uses of the application such that the network itself needs to do no work other than recognize packets and destinations and forward them on a best efforts basis. Notice that, like neoliberal epistemology, this design eschews any claim that the designers or managers of the network can know what the network is for, let alone how to optimize it for that use. The network is not designed for hierarchical information flow "up" to designers or engineers and "down" to the network architecture to reshape it in light of expert judgments. Unlike neoliberal epistemology, however, the network gives no privileged room for prices as a source of decentralized information about what the network is for. The first-come, first-served, best efforts network explicitly and consciously rejected the possibility of packets to bid for slots. The voices pushing for "ATM", or asynchronous transmission mode, did so precisely to introduce price as a privileged way of knowing what the network is for, or at least what it should be most optimized for. Without this change, there would never be voice over Internet, was the cry at the time. Instead, four Estonian engineers backed by a Dutch and Danish entrepreneur, who had designed the pirate music-sharing site Kazaa, used that core design to create Skype, and voice over Internet became widely used, without packet pricing. Today's net neutrality debates are largely a product of rent-seeking by incumbent telecommunications carriers, but when they are engaged in by good-faith discussants, they are joined between those who still hold the neoliberal epistemology and want to make sure that net neutrality does not get in the way of the one true signal – pricing – and those who insist that prioritizing traffic based on ability and willingness to pay squelches the learning network process by privileging only a subset of the important signals – those that can pay their way.[52] Again, the same exact dynamic of rent-seeking by incumbents backed by an epistemological commitment to prices in markets as the core mode of knowledge is reflected in debates over spectrum policy between proponents of auctions and those of spectrum commons or unlicensed wireless.[53]

Prices are necessary and sufficient in neoliberalism because human beings are adequately captured by *homo economicus*. If we are uniformly self-interested, acting with guile, then our efforts at reason-giving will collapse into "cheap talk", manipulating one another to achieve what is most advantageous, disregarding whether this occurs at the expense of others.[54] Prices, by contrast, and "revealed preferences" through paying them, are the only real way of knowing what people want and coordinating for mutual advantage. Policy is therefore oriented toward eliciting prices and minimizing the scope of action governed by cheap talk. By contrast, the Internet Engineering Taskforce's motto, "We reject: kings, presidents and voting. We believe in: rough

consensus and running code”[55] expresses itself in political terms as rejecting hierarchy, but its adoption of a price-insensitive protocol and continued reliance on “rough consensus and running code” marks it as a fundamentally different critique of hierarchy than the neoliberal critique of authority. Indeed, it depends on “rough consensus”, every bit as much as Wikipedia depends on community norms that assume a shared goal and good faith[56] – the fundamental opposite of the assumptions of neoclassical economics and game theory.

Two critical elements underlie the success of the Internet as a technical infrastructure, and characterize network pragmatism as an epistemology and social practice. The first is that, given uncertainty and fallibilism, exploration in communities of practice trumps authority or price-mediated optimization. The second is that *homo economicus* is empirically incorrect and is practically counterproductive as a model of practice, and is better replaced with *homo socialis*.

By design, the Internet protocol prioritized decentralized experimentation and exploration, unconstrained by the power of incumbents or by the need to pay for priority.[57] Spectrum commons, similarly, permit diverse actors to experiment with wireless technologies without reference to the desires of a regulator or owner.[58] More generally, work on open access commons in the past twenty years has emphasized that open commons address uncertainty better than property or managerial hierarchies precisely because they make innovation and experimentation under uncertainty easier to pursue, and emphasize conversation and knowledge flows rather than arms-length negotiation around standardized packets of information goods. Property centralizes the point at which information and incentives necessary to determine the access, use, management, and disposition of a given resource in a single entity by giving that entity asymmetric power to determine who will get to access or use the resource, at what time, and for what purposes. The defining feature of open commons is that there is no such asymmetric power. Instead, the resource is subject to a set of symmetric rules concerning access, use, extraction, and management. The absence of asymmetry removes the owner as a focal point for transactions and as the coordinating mechanism for competing claims on the resource. The symmetry allows diverse users the freedom to operate without transacting, within the symmetric constraints and subject to the congestion characteristics of the resource. As in the case of property and unlike regulatory decisions, information is gathered and processed by decentralized actors. Unlike the case of property, information gathered by these decentralized actors is not collated in a single decision point. Rather, diverse actors act upon information they have or exchange without the need to translate it into a universally understood expression (currency, most importantly) that compares competing uses and clears them. Where the level of uncertainty is such that freedom of action (to adapt to changed circumstances) is an important desideratum, in some cases more than security in holdings (whose value and utility are part of the uncertainty) and power to appropriate outputs directly through exclusion (whose coming into being is part of the uncertainty) – we need, and we are ubiquitously surrounded by, both commons and property.

The field of study where the limits of property and the benefits of commons are most explicitly and exhaustively documented is innovation studies, where the trend of the past two decades has been to increase the emphasis on knowledge flows and sharing in learning networks, whether market or non-market; on non-market sources of innovation, relative to market sources; and on commons, rather than property.[59] Economic history of innovation shifted its focus from heroic inventors on the Edison model to richer descriptions of communities of practice, networks of innovators who shared information and experiments to produce a series of incremental collaborative contributions rather than the light bulb image of the individual creative genius. From the steam engine and spinning jenny to the McCormick reaper and heavier-than-air flight, the story of industrialization through invention has been retold through the prism of network innovation among cooperators, rather than as individual genius or primarily market-oriented, price-driven innovation.[60] Organizational sociology documented the rise of the learning network, across diverse organizational boundaries, harnessing diverse motivational profiles, as central to the innovation process across a wide range of disciplines.[61] Economic geography has exhaustively documented the role of social networks (in the real world, not in the online sense) in the diffusion of knowledge and the cross-pollination of ideas among different people with different experiences and relationships, starting with Saxanian’s groundbreaking work[62] and adding detail and measurement ever since.[63] Owen-Smith & Powell showed these interacting effects in the Boston biotechnology sectors, among firms and across the firm-academia boundary.[64] These findings, in turn, have translated into insights about the institutional framework that leads to innovation – in particular, the fact that institutional forms intended to optimize for the self-interested rational actor – intellectual property rights or strong determinative contracts like non-compete clauses – harm, rather than help exploration in social networks, and therefore harm innovation.[65] In parallel, extensive research on user innovation following Eric von Hippel’s groundbreaking work has documented the repeated centrality of users innovating for their own use, and sharing in practice communities innovations that market-based firms only adopt and productize after the initial exploration, identification of needs, and significant working out of the solutions to these needs has been conducted by users interacting freely with each other in social, not market processes.[66]

The most explicit clash between innovation and the property relation has been in software development in general and FOSS in particular. The poor fit of intellectual property models to the lived experience of software development has long been a major topic in the study of law and technology.[67] The sheer incoherence of applying patent law to the field, and the poor fit of copyright law to this rapidly moving continuously in flux practice has sustained hundreds of articles and books.[68] But the most powerful argument has been the actual, real world adoption, by well over a million software developers, nearly half of the firms creating software, and the majority of Internet users, of free and open source software practices, licensing, and basic infrastructure utilities. In other words, at the very heart of the most innovative and fast moving parts of the global economy, commons-based production has become a central model of industrial organization.[69] FOSS explicitly adopts a licensing mechanism that contains the role of property. It insists that every recipient of the software receive a copy of it, encouraging users to read, learn, and revise it; it grants every user the right to modify, copy, and redistribute the software, and in its most widely used form, the GPL, it requires those who do so modify and redistribute the software to recede the commons with their improvements.

If neither hierarchy nor price can outperform decentralized learning in communities of practice, we need a different model of human action to describe these cooperative interactions and we must design institutions to facilitate them. What kind of human being can operate under “rough consensus and running code”, or “assume good faith” as basic institutional models, and how does our understanding of human beings of this sort translate into actual built human systems?

The second critical transition of network pragmatism is therefore the shift from *homo economicus* to *homo socialis*. [70] With roots in work in the 1980s, but gaining steam in the 1990s and 2000s, there has been extensive work in evolutionary biology, experimental economics, political science, management science, psychology, and computer science that has consistently shown that the model of rationality that was the driving engine of the neoliberal moment – self-interested rationality – is a poor description of the actual diversity of human motivation. Few quotations can capture the vast transformation of the state of knowledge on cooperation than evolutionary biology. In 1976, the year that Tom Wolfe wrote his famous critique of the culture of the '70s in *New York Magazine*, “The ‘Me’ Decade and the Third Great Awakening”, [71] Richard Dawkins published *The Selfish Gene*, in which he famously wrote: “Let us try to teach generosity and altruism, because we are born selfish”. [72] Thirty years later, writing in *Science*, Martin Nowak was able to write of the changed state of the discipline: “Perhaps the most remarkable aspect of evolution is its ability to generate cooperation in a competitive world. Thus, we might add ‘natural cooperation’ as a third fundamental principle of evolution beside mutation and natural selection”. [73]

There are two major elements to this shift. The first is diversity of motivations. Empirically, human beings do not conform to a single uniform model of motivation, much less one that conforms to the predictions of self-interested rationality. Instead, we are diverse, and while a substantial minority conforms to the neoclassical model, the majority of people are more diverse. Some are reciprocators, who will reciprocate good for good and bad for bad. Some, a minority, behave as altruists. Some are more focused on social status than on reciprocity. A substantial minority indeed conforms to the predictions of *homo economicus*. All, however, are heavily influenced by social context and meaning, and will cooperate extensively when they believe themselves to be in a “cooperative” social setting, while handling themselves as *homo economicus* if they understand the context to be one where there is no room for social motivations. [74] In other words, while motivations do “exist” as a foundation for micro-economic analysis, these motivations are socialized and malleable based on the design of the interaction. They cannot be taken as exogenous to the mechanism design decisions. This is the second major element of the shift. Motivations are non-separable in context. [75] They can be crowded-in or crowded-out by interventions aimed to trigger one dimension of motivation by influence several in different directions. The neoclassical model long assumed that even if motivations were diverse, they are separable. As long as this is true, if I add money to a behavior or impose a fine on it, people would increase or decrease that behavior in response, relative to a baseline that the other motivations would have led them to. This meant that as a practical matter, neoclassical models could ignore other motivations without introducing error. Empirically, however, research has repeatedly shown that adding money or punishment to an interaction does change other, social and psychological motivations, so that the sum total of introducing material incentives or punishments may often result in behavior which is opposite to the desired behaviour these incentives or punishments are trying to elicit.

In combination, these two insights explain why adherence to *homo economicus* has been such a profound failure as a basis for designing institutions in the past forty years. Its micro foundational model systematically fails to predict actual observed human behavior under experimental conditions. And its prescriptions often have the opposite of their intended effect because they assume that the micro-motivations are exogenous to the intervention, when in fact they are endogenous. Nowhere is the failure more clearly presented than in the area of executive compensation, where the rational actor model, translated into agency theory and shareholder

value, underwrote an institutional transformation that has, since then, attracted fraud, manipulation, and underperformance[76] more than any reliable evidence of improvement.[77] Indeed, by 2012 even the most prominent proponents of stock-based executive compensation in the 1980s had come to the conclusion that pursuit of stock options was leading corporate officers to playing earnings games rather than improving performance, causing “‘huge’ damage to ‘investors, customers, employees, communities, and the functioning of capital markets’”.[78] In parallel, studies are similarly beginning to show that the financialization that resulted from financial deregulation, again driven by erroneous models based on an erroneous view of human nature, has actually resulted in a decline, rather than improvement, in productivity. Finance seems to divert resources from the real economy and innovation to unproductive financial activities that raised short term profits but did not contribute to rising productivity or real growth.[79]

#### *From Fallibilism to an Open Social Economy*

The core of Karl Popper's argument in *The Open Society and Its Enemies* emphasized the need for open and diverse institutions in the name of the deep fallibility of perfectionist projects – from Plato's Republic to Fascism and Communism. It was this focus that made his work congruent with the origins of neoliberalism and the Mont Pelerin Society.[80] Participatory institutions, openness to criticism and diversity of views and dissent were corrective mechanisms necessary in the face of the inevitable fallibility of human institutions. Ironically, the full neoliberal agenda, with its continuous effort to push all forms of human interaction into market relations and framings, is precisely one such perfectionist project that has led to substantial political instability, social injustice, broad economic insecurity, and slower economic growth and financial volatility. Once we understand that markets are no less fallible than other human institutions, however, the failure of market-centric perfectionism becomes as inevitable as were all other perfectionist projects. Translating an epistemological stance – fallibilism – into a basic argument of economic organization requires no less of a broad commitment. Here, I will only outline the theoretical flow from fallibilism to core normative and structural commitments of an economic system.

Fallibilism requires constructing learning, adaptive systems. These, in turn, require diversity of both motivations and relations (that is, institutions, which themselves require experimentation and continuous evaluation and updating, and organizational forms). Diversity of motivations is necessary because fallibilism and uncertainty make it impossible to fully characterize required behaviors for pricing or command. Intrinsic and social motivations must be engaged, and economic practice must be socially-embedded in cooperative practices in order to elicit those diverse motivations in economic production. Diversity of social relations (institutions generally, and organizational forms in particular) is necessary to offer perspective and experimental opportunities to test existing practice. Rejecting the possibility of perfectionism, whether perfect markets or perfect controlled systems, requires that these relations be open and loosely coupled. By “open” I mean that they are designed such that actors and behaviors can move in and out of the relational networks within which they act together, to allow between-system learning. By “loosely-coupled”, I mean that systems are not overly deterministic about the outcomes of forms of interaction that occur within them, to allow within system experimentation. Both of these evoke a conception of freedom that understands human behavior and social relations as always occurring within systems of constraint and affordance, and always defined in terms of practical freedom to form beliefs, preferences, policies, and principles, pursue diverse outcomes, and engage in shaping the architecture of one's constraints.[81] Extensive work on cooperative work and self-governance has emphasized the need for communication and participation as foundational aspects of a cooperative system, and the commitment to open systems for continuous questioning and investigation requires transparency, nondiscrimination (so as not to entrench existing views), irreverence, and redundancy, even though there is also a need for leadership within this system open to continuous contestation. Justice and fairness, both in procedural terms of nondiscrimination and opportunity, and in terms of substantive economic equity, are required in this system in order to maintain the possibility of cooperative activity. Too great a differentiation, as we have seen in the past decade, creates conflict, rather than cooperation, and undermines the possibility of cooperation based on shared fate. Finally, network pragmatism incorporates the behavioral turn primarily by insisting that micro-foundational characteristics of individual behavior are plastic – that is, people's baseline tendencies to behave in certain ways are socialized or even elastic – in the sense that people's behaviors are situational, responsive within a broad socialized pattern in more locally responsive ways; and reasonable and coherence-seeking, in the sense that they are not strictly formally rational, but rather closer to Simon's satisficers (reasonable) and will seek to understand the world, the options open to them, and the value of competing outcomes to cohere with what they perceive to be the actual practice and outcome they are likely to obtain. This means that designing rules that are more cooperative, normatively driven, and socially-embedded will, in turn, result in micro-motivational adaptations that will reinforce these relational, socially-embedded forms of economic practice.

#### **Nascent programmatic translations of network pragmatism and an open social economy**

Because network pragmatism has emerged organically, from human practices and from scientific developments that have not been coordinated in the way neoliberalism was from the 1940s to the 1970s, its policy prescriptions and engagement with the political system have been episodic and less comprehensive. There are some areas where politics and policy are clearly joined along the divide between neoliberalism and network pragmatism precisely in terms of the competing epistemologies. Net neutrality – the battle over whether to allow Internet carriers to control and prioritize traffic in return for prices, or whether to impose the continuation of the commons model that has typified the Internet from its origins – is an obvious area. Debates over patents and copyrights, spectrum regulation, digital rights management, trade secret and non-compete law, are all already deeply enmeshed in the battle between the two fundamentally oppositional views of how we know and innovate. The political battle lines are largely drawn between incumbent businesses intent on maintaining their advantage, controlling critical resources through state granted property-rights, the telecommunications carriers, major patent-holding firms, etc., and decentralized social networks of actors, like free software developers, as well as entrepreneurial firms aiming to succeed within learning networks rather than by controlling opportunities for learning and innovation. The coalition that James Boyle long ago described as an environmental movement for the Net[82] indeed emerged and has become a political force in its domains. But this work has been largely absent from more traditional labor economics, macro-economics, finance, or trade, so that there remain broad swaths of the most relevant work on economic governance that require extensive development. As a result, while some of the participants in the network political movements around politics of the Net and free culture, like the 15M movement, did in fact translate into a political movement (in the form of Podemos), the fit is imperfect, and translation from the political energy of the free culture movement or the open internet mobilization to a more egalitarian economic policy has been imperfect at best.

At this early stage, we can outline three primary translation efforts between network pragmatism and broader economic policy. The first is the effort to transform social relations within standard, investor-owned firms, based on understanding the critical role of social motivations to make firms into internal learning networks and connected to external learning networks. The second is an effort to make economic policy more transparent, participatory, and oriented toward socially-embedded economic production. The third is an effort to build on the experience of cooperative businesses of the past century, and extend their reach and effectiveness through leveraging the same technological affordances that made both commons-based peer production practices like Wikipedia and FOSS, and extractive platforms like Uber and AirBnB, such successful platforms.

### **A stakeholder value theory of the firm**

In the summer of 2014 the Boston area was captivated by the puzzling images of workers and consumers standing shoulder to shoulder in protests over management philosophy. Arthur S. Demoulas, Chariman of the Board of Market Basket, a supermarket chain, engineered a board ouster of his cousin, Arthur T. Demoulas, from the position of CEO. The workers weren't protesting for wages or benefits. They were protesting over managerial philosophy. Arthur S. wanted to focus on the bottom line for financial-market-driven shareholders. Arthur T. managed the place like a long-term concern of multiple stakeholders. The protests worked. Arthur S. ultimately sold to Arthur T., the ousted CEO returned to his job, and Market Basket returned to even more successful operating results. Arthur T. ran a company that provided its employees with a sense of dignity and an emotional-social stake in the firm, as well as a secure economic base. The core of the debate was over whether the best way to run a business was derived from a rational actor, managerial authority, shareholder-value focused model, or a model that has for decades been taught and researched in business schools under diverse names, from "the firm as collaborative community", through "high-commitment, high-performance", to "good jobs" strategy. All depend on a conception of motivation, cooperative dynamics, and self-direction fundamentally at odds with the rational actor model that drove neoliberalism and oligarchic capitalism.

The Market Basket story represents the smallest conceptual change that network pragmatism could underwrite, but it is potentially the change that will have the broadest impact because it represents a fundamental change in practice for the large set of traditional investor-owned businesses. Neoliberalism offered justifications for a range of organizational practices. Critically, *homo economicus*, specifically in its shareholder value as the sole focus of the corporation[83] provided the intellectual justification, through agency theory, for extremely high and growing executive compensation at the top of the income distribution and the adoption of fissured workplace strategies – outsourcing, offshoring, and workforce casualization – as core elements of maximizing shareholder value.[84] These became pillars of oligarchic capitalism, as it saw broadbased economic insecurity for those who earned as workers in the fissured workplace[85] coupled with fantastic wealth extraction by the very small managerial and financial class.[86] At the simplest level, work in management science and organizational sociology that focuses on the need of the firm to continuously learn under uncertainty demands a more stable, committed, and engaged workforce that identifies with the firm. Ton's "good jobs" in retail,[87] Beer's work on "high commitment, high performance" organizations,[88] the work of a quite a few organizational sociologists like Heckscher and Adler,[89] all point to a possible basic reorientation of business culture and investor culture

as to what counts as “good management”. This applies both to what counts as an appropriate level of pay and stability for line workers, a revival, if you will, of efficiency wages, as Shapiro and Stiglitz explained it,[90] as the norm of good management rather than a nostalgic receding past, and what are acceptable levels of executive pay – that managers should, in fact, be “paid like bureaucrats”, as Frey and Osterloh put it.[91]

The basic point is simple. One critical driver of wage dispersion and labor instability at the median and bottom, as well as the stratospheric rise of the 1% and 0.1% is the set of norms that developed over the course of the 1980s and 1990s about what “appropriate” levels of compensation and workforce management were. These were not driven by the necessities of competition given technology and globalization, as becomes clear when we compare countries at the same technological and globalization frontier, like the United States and the United Kingdom, on one hand, and Germany or Japan, on the other. Rather, they were driven by a set of beliefs and ideas, elite norms, and popular cultural dynamics surrounding superstars and the inevitability of market dynamics that justified the rent extraction practices that are at the core of oligarchic capitalism, coupled with institutional changes that weakened labor’s bargaining power.

The combination of long-term changes in the intellectual understanding of human motivation and dynamics, the shift to *homo socialis*, and the political urgency instilled by the rise of populism and the rejection of oligarchic elites, creates a new urgency, and a new opportunity, for politics and institutional change aimed at recalibrating what counts as “normal” in firm organization. Just as institutional changes that weakened unions also weakened mechanisms for more egalitarian social norms enforcement,[92] not least norms surrounding executive compensation and media worker compensation in firms,[93] or smoking prohibitions created positive feedback with public relations campaigns to change social norms around smoking,[94] a political commitment to change social norms surrounding the appropriate relations would not, and should not, limit itself to public relations campaigns or impassioned exhortations to elites to change their norms. There is a rich legal literature on how law shapes norms. Tax policies that more-or-less tax away the entire value of executive compensation that is more than a given multiple of median firm compensation, or some combination of lowest and median compensation, would likely force firms either to increase median and lowest compensation or decrease executive compensation, or likely some combination of both, and would push status competition among executives away from cash compensation and towards other, less tangible modes of status expression. Other proposals that might present themselves as examples of applying open society principles to economic organizations – discussed below, would also feed back into the norms and internal dynamics of investor-owned firms as well. Requirements for worker representation in boards, double and triple bottom line definitions of firm responsibility, and so forth could all both provide a corrective for too narrow a view of the firm’s goals, and shift managerial social norms from extractive practices legitimated as shareholder value enhancing to a more stakeholder oriented view of the firm. Critically, if the thesis that managerial norms shifted across the board, in both public and non-public firms, over the course of the 1980s because of social norms dynamics rather than direct legal rules,[95] changes in firms directly affected by the legal changes would spill over to what counts as “normal” practice even in firms whose practices are not directly regulated. All these would represent a significant change in practice, and are reflected in some of the newly developing models such as for-benefit corporations, or the increasing recognition that not-for-profit organizations may be critically important in major growth areas of the most advanced economy – in particular in the fields of healthcare and education.

### **Applying open society principles to economic governance**

The adoption of a stakeholder view of the firm, or the model of the “firm as collaborative community” is the most direct adoption of an open society, participatory decision-making as a corrective for error and fallibility into economic production. Participation on behalf of workers, consumers, and the communities affected by the decisions of firms and other economic organizations is not conceived of in this framework as arms-length bargaining between fundamentally oppositional forces within the firm, but rather as a corrective for internal errors and as a source of innovation and improvement within the firm and in the relations of the firm to its social environment.

Beyond the internal governance of firms, however, a core dimension of an open social economy would reflect the representation of a more diverse set of people in the decision-making processes of economic governance. Rather than industry self-regulation or participation by the regulated entities in the process, an open social economy model would focus on participation by all affected people. The Fed Up campaign in the United States offers one clear example of an effort to open up technocratic economic governance to participation from citizens affected by the policy choices the technocrats make. Founded in 2014 by the Center for Popular Democracy, the campaign aims to enable workers who are affected by monetary policy to participate in the Federal Reserve Bank’s decisions, in particular emphasizing the Fed’s double mandate – to reach full employment as well as contain inflation.[96] The campaign would seek to reduce banking industry representation on the regional boards, and increase community and labor representation, as well as racial and gender diversity on these

boards.[97] Setting inflation targets and unemployment levels is likely the single most significant policy choice affecting workers' bargaining power in markets.

One of the more ambitious efforts to build an open social economy model that integrates the commons and the insights of open, learning governance models is reflected in the current plan of the Barcelona City Council. While the plan is in its early stages, and cannot yet serve as an empirical case study of its model, it provides a roadmap for the kinds of interventions that would make for a coherent public reorientation around the principles of an open social economy. Outlined in what the governing coalition called *The Impetus Plan for the Social and Solidarity Economy*,[98] the plan makes three critical contributions. First, it emphasizes participation at every level – active participation of the various participating enterprises in the planning, designing, and implementation of public interventions; and a focus on participatory economic organizations as a means to assure continuing commitment to social solidarity over time. Second, it underscores the already-existing diversity of organizational forms in the actual, real economy. In particular, it focuses on the large role of “third sector” or nonprofit organizations; worker-owned enterprises; cooperatives, both consumer and worker; and commons-based community productive projects. And third, it seeks to design a supportive and enabling role for the government, rather than a managerial role, thereby seeking to avoid some of the more stultifying effects of government participation in economic production.

Materially, the plan calls for the municipality to offer facilities and resources – physical spaces for meeting and coordination, shared resources; offer public procurement and subsidy preferences to solidarity and commons-based practices; and offer tax incentives for participatory economic organizations. Still ambiguous in its details, the likely most meaningful line of work the city plans to invest in is to support the creation of an “ethical finance system” intended to bridge the systematic difficulties social solidarity organizations and cooperatives face in obtaining startup and working finance because of background assumptions in the financial system about the relative superiority of the traditional investor-owned model. Organizationally, the plan proposes to invest in the city's ability to offer mentorship and training programs oriented to prepare students, workers, entrepreneurs, and SME owners to reorganize themselves in cooperative or social solidarity forms; and it seeks to set up platforms, technical and physical, for social solidarity economy organizations to find each other and create mutually-supportive economic networks. Perhaps more ambitious is the city's plan to change perceptions: to foster events and public campaigns to create “a common narrative and imaginary” for the social solidarity economy. One of the lessons long learned in the history of cooperatives has been that cooperatives can thrive if they take root, but whether this happens is more a matter of local or sectoral contingency than any systematic advantage or disadvantage cooperatives have over investor-owned firms. Changing the background assumptions about what forms of business are available and successful will change both investors' and banks' perceptions, as well as those of workers and entrepreneurs. Again, I offer this plan here not as a working example, but as the most completely developed, politically-supported model currently in the works – a model that needs to be followed closely and whose successes and limitations will teach us quite a bit about what is feasible in reorienting government action toward a public-commons partnership, as they call it in Barcelona, rather than the public-private partnership that typified the solution space pursued since the 1990s across most economically advanced democracies.

Despite the potential promise of approaches like the Barcelona model, recognition of the fallibility of all institutional arrangements emphasizes diversity and context-sensitivity in locating power to regulate economic activity and design its institutions. Whether we think of it as polycentric governance[99] or subsidiarity, the core idea that locating decisions closest to where they will have an impact is critical. The trouble with this principle is that nothing makes local institutions inherently better or less susceptible to capture or myopia. In the United States, “Federalism” and treating the states as laboratories for policy has a long history, but “States Rights” was also long an argument developed by Southern States to allow them to retain their racist institutions. When local communities want to build their own high speed broadband networks, states have occasionally been harnessed by telecommunications incumbent firms to deny municipalities that power, and the Federal Communications Commission has, in turn, sought to centralize the power at the federal level in order to remove it from the states and return it to the municipalities.[100] Deciding where to locate power cannot follow a simple rule, because both the sources of insight and the sources of error or corruption will change from issue to issue and from one historical-social context to another. The tension between “harmonization” and “market integration” so widely used by the European Commission, the principle of subsidiarity, and the reality that there is no Archimedean point from which to objectively decide what level will be optimal for what decision forever makes the design of polycentric governance and institutional diversity itself a continuous question for experimentation, learning, and adaptation in open, participatory decision making processes.

### **A Resurgent Cooperativism**

A third pillar of the efforts to recover from the crisis of oligarchic capitalism is the effort to increase and deepen the cooperative sector. The success of commons-based peer production to produce some of the

core pieces of communications, software, and knowledge utilities of the current period (Internet protocol, the LAMP stack, Wikipedia) has inspired a renewed interest in cooperativism as a real option for organizing a substantial part of the economy around worker and consumer cooperativism rather than investor-owned capitalism. Cooperativism or mutualism, in turn, has been in the repertoire of alternatives to capitalism since Owen and Proudhon. In some regions – Basque Country, Emilia Romagna – or industries – U.S. dairy farming – cooperatives have become major, sustainable parts of the region or sector. But, realistically, cooperativism has not played a transformational role in the past two centuries of capitalism. Today, however, we are seeing a resurgent interest in cooperativism, most prominently in the middle of the second decade of the twenty-first century in the form of “platform cooperativism”[101] and “open cooperativism”.[102]

Enspiral is a network of individuals and small enterprises in New Zealand, working in and around software development. Participants of various forms set their own monetary contributions to the network, contributions are divided into two halves – a basic operations charge that goes into funding shared facilities, like professional services and a workspace in Wellington; and a collaborative funding “cobudget” fund through which members fund each other's early efforts, or specific services to the network. While small, it reflects a fairly well-developed network-based model among software developers of something reminiscent of farmer-producer coops, the most common form of cooperativism around the world. The Freelancers Union, by contrast, has no pretensions at being a single cooperative with shared governance, but rather is a service organization for 350,000 freelancers who cooperate to obtain health, life and liability insurance, as well as retirement investment. Several cities, Barcelona as we saw among them, are beginning to introduce local benefits for cooperative businesses. This may range from the simplest functionality – providing tourists and residents context-specific information about which restaurants around them are cooperatives – to make ethical consumption along the dimension of worker ownership simpler, to more engaged efforts to provide local contracting, public spaces, training, and networking functionalities for cooperatives.

It is, of course, too soon to tell whether cooperativism will expand to cover a substantial part of the economy. Where they were able to take root as a matter of historical accident, cooperatives have been successful, stable, and productive. For example, cooperative utilities took root decades ago in some parts of the United States, including the South in particular, and they have consistently higher customer satisfaction than either municipal or investor-owned utilities.[103] By contrast, in one classic study of Washington cooperative lumber mills, the cooperatives were as productive and efficient as conventional firms, but more resilient to downturns; and yet when the center of gravity of the industry moved from the Pacific Northwest to the South, the cooperative models did not move with it.[104] Cooperatives can thrive, or not, even within very similar sectors. In dairy farming, cooperatives became the dominant model, while in other animal farming activities they are largely absent.[105] Whether cooperatives develop in a region or sector, then, is a matter of historical contingency, not economic efficiency. Conventions, imitation, habit, and practice, not economic superiority, are what determine the presence or absence of cooperatives. Cooperatives have been good enough to be stable in the face of market competition where they do emerge, but not sufficiently superior to force their way into markets already saturated by conventional firms – whether investor-owned or state-owned – and conventional attitudes toward cooperatives. The question, in terms of the future of cooperatives, is where there is room to grow in a space of operations sufficiently open to disruption.

Three dimensions of disruptive opportunity suggest that cooperativism may be a productive pathway in the near future: technology, ideology, and experience in practical governance of collective action without property or hierarchy.

The first change is that the technological elimination of transactions costs challenges the continued role of the firm.[106] Coase's classic theory of the firm was based on transactions costs economics. Because transactions costs existed, firms developed and grew up to the point where the cost of allocating resources to projects through managerial hierarchies exceeded the cost of doing so in the market. Williamson's adaptation added monitoring of agents who acted under self-interest with guile. Both functions can now be replaced by online labor markets and platforms, whether like Upwork, for high talent where a firm is trying to manage projects that require more diverse knowledge than its present employees possess, or, for more fungible work one can turn to on-demand economy platforms like Uber or TaskRabbit. One possible continued role for the firm is to finance high physical capital costs. Current experience with semi-conductor foundries suggests that very high capital costs lead to concentration of manufacturing, while still leaving R&D, patenting, and branding in the hands of other firms. The answer may be that the cost of prosecuting and licensing patents, or managing demand through control of brands is sufficient to justify keeping R&D and intellectual property within a single legal boundary of a firm, but it is far from clear at a theoretical level what advantage such a legal monopoly-based firm would have, from the innovation perspective, over a flash team that rapidly designs the next generation chip, and then uses the foundry to capture the rents through first mover advantage without incurring these larger costs.[107] One option for answering the question about the future of the firm, then, is that firms will continue to



play a role when they have the advantage in amortizing high capital costs over many diverse innovation efforts where optimization of that innovation and its manufacture and distribution are core necessities. The present relationship of various companies like Qualcomm and Apple to the foundries suggests, however, that the firms that invest in physical capital are offering commodity production capability, and as robotics expands, they are unlikely to be the primary source of either profit or employment. Furthermore, if we are to take seriously the potential of distributed fabrication (what we think of as 3D printing), it is entirely within the realm of reasonable prediction that fabrication that today requires large, concentrated physical capital that can capture economies of scale and scope will in large part shift to smaller scale, distributed fabrication using standard materials and exotic designs. The second option for what firms will do is to exploit legally-created rent extraction opportunities in design or demand management (through protected brands). The necessity of continuing legal claim is what gives the advantage to a continuous legal entity such as a firm, over a fluid market relationship that comes together purely for the purposes of exploration and innovation. And this rationale for the firm is robust both to the commodification of centralized fabrication and to distributed fabrication. It creates the possibility of multiple equilibria, where legal regimes that open the possibility for commons-based production elicit innovation that does not need regulatory protection and the rents it enables, and moves rapidly outside of the boundary of firms, while legal regimes that do create rent-extraction opportunities create firms to develop innovation along lines optimized to capture those rents, and further invest in securing the rent-extraction institutional devices. The continued role of firms in innovation, in this context, becomes contingent and path dependent, rather than efficiency- or growth-optimizing in a social welfare sense.[108] It is the rent-extraction rationale of firms that marks the way to the kind of exploitative relationship that “uberification” of work presents.

Another possible answer, however, emerges when we combine the technological shock with the rise of *homo socialis*. A firm that is particularly good at creating a culture that will be better at eliciting and focusing pro-social and intrinsic motivations on a given class of projects than a loose network of peers will have an important and persistent role to play. We could think of *cooperative capacity* as the idea that a firm could maintain its coherence in the face of vanishing transaction costs if it is able to harness diversely-motivated individuals to work in a persistent social relationship. *Motivational diversity* overcomes the problems of contractibility and monitoring, while *social integrity* permits sufficient interaction and learning feedbacks over time for knowledge to emerge within the networks of people who are part of the firm that is unique relative to knowledge outside the boundary of the firm, knowledge that gives the firm its distinct advantage over ad hoc networks of innovation and production.

The combination of technology and intellectual shift means that cooperatives under present technological conditions have a distinct structural advantage, while their highest cost – communication necessary for self-governance – is increasingly being reduced by better communications and governance platforms. If indeed lower transactions costs and competition from nimble, flash organizations and non-market innovation means that building communities of meaning around economic collaboration is the primary form of strategic advantage firms have over dynamic, fluid networks of collaborators, then cooperatives have a built-in advantage as a model for communities of practice. What I have described here as the emergence of network pragmatism, *homo socialis*, and the commons has created an alternative cultural framing for what is the “normal” way of doing things. Practice and theory are providing the cultural framework within which people can come to believe that cooperativism can in fact work, on a mass scale, for important swaths of their Internet-mediated social practice. Moreover, the shifts that make up this transition in knowledge frame have included a range of experimentation, measurement, and design practices that allow us to construct organizations and collaborative networks that respect and mobilize sociality, rather than assume and harness guileful self-interest. And that is the third aspect of the present that makes cooperativism more plausible.

Commons-based peer production has provided a template and experience with the possibility of large-scale enterprises managing and governing themselves through online cooperative platforms. They offer extensive and growing experience with how networked peers govern themselves, allocate work and responsibility, and manage day-to-day operations across time and space. This experience suggests that the combination of economic disruption, the opportunities to capture new markets, a shared cultural imagination of the possibilities of cooperation, and deep practical experience with online cooperation as a practical solution space make this moment different than it might have been throughout most of the rise of industrial capitalism. Nonetheless, challenges remain.

Peer production has thrived on pooling voluntary contributions of participants. This has allowed commons-based peer production to release its outputs mostly free of charge. Peer cooperativism, if it is to become part of the solution to increased economic insecurity for many in the twenty-first century, must be able to sustain cooperation while charging customers and users a price and fairly distributing the proceeds among the peers. This is a challenge that commons-based peer production did not face. The established cooperative movement has shown that the challenge is not insurmountable, but it is real. Not least among these challenges will be the

need to mediate the driving ethic of peer production, that its outputs are in the commons and available for all, with the necessity of providing income to the peers themselves. This will be easier for service models, as we have seen with FOSS, than for information goods that do not have a clear service model, like stock photography. Given that most work is likely to be of the service kind, rather than information-goods-sold-as-units mode, that limitation is not too constraining. Ethical coherence strongly suggests that cooperatives providing information goods must develop models of shared membership or service, rather than aim for building on an “intellectual property” strategy that will separate these cooperatives from the heart of the movement.

The enormous literature on Wikipedia governance will be pertinent, because Wikipedia, unlike many other peer production communities, has evolved into a body that has a responsibility – cultural, if not economic – for an output. And Wikipedia tells us that things will not be easy. There is a wealth of literature on the problems, as well as the magic, of Wikipedia governance. Combining it with the Ostrom school literature must drive cooperatives to design not only participation, but also mutual monitoring and dispute resolution systems, and in particular affordances to permit nested power or subsidiarity – the organization of governance at the closest possible level to where the activity being governed is taking place, consistent with coordinating at the broadest level of the cooperative. The biggest likely difference from peer production will be the need to define membership more strictly. In cooperativism, as with commons-property-regimes and unlike open commons, it will be important to clearly define who the members are, and place a higher barrier on membership than peer production has done. This is so partly because the quality and timing of outputs will be more critical, and partly because of the need to maintain a reasonably-defined universe of participants among whom returns sufficiently high to make a real contribution to their livelihood must be shared. All these suggest that cooperativism of the future will be more like producer cooperatives – whether agricultural or craft-based – which share larger capital costs, provide a range of mutual insurance programs, political and institutional support, and credit facilities – but are otherwise more loosely-coupled networks than the tightly-integrated industrial firms that characterized traditional worker cooperatives like Mondragon.

## Conclusion

Democratic capitalism is in crisis. The election of Donald Trump in the U.S. and the success of the Leave campaign in Britain represent the most transformative political manifestations of this crisis, although the politics of austerity in Europe, the persistent power of economic nationalism in France and the Nordic social democracies, the rise of illiberal majoritarianism in Hungary and Poland, and the high levels of unemployment in Southern Europe suggest that the EU too is under stress. The epistemic foundations of the crisis are in the 1970s-1980s shift from Weberian expertise and managerial capitalism to a mixture of neoliberalism and anti-authoritarian left criticism of knowledge/power. Coupled with political and institutional dynamics over the course of the past forty years that is the result in asymmetry in the programmatic focus of the right and the left, embedded in technological systems, these changes underwrote the emergence of pluralist oligarchy as the political system within which oligarchic capitalism emerged as the economic production system. As we struggle through the already decade-old crisis, I have suggested here that a class of practices and intellectual trends have outlined one possible pathway out of the present crisis. Network pragmatism as an epistemology, based on the assumption that fallibilism and uncertainty are the norm, requires continuous learning, experimentation and adaptation in communities of practice which, in turn, base their organizing principles on these core values. Network pragmatism provides the foundation for an open social economy as a system of economic production, complementing what we already often see as an open society in the political domain. I do not present this approach as in any sense inevitable. But it does offer a more attractive image of participatory, cooperative, and human economy and society than its present competitors. And it is an image grounded in actual, successful practices and extensive empirically-grounded work, rather than in ungrounded utopian ideals or pure political imagination.

## End notes

[1] D.J. Flynn, Brendan Nyhan, and Jason Reifler, “The Nature and Origins of Misperceptions: Understanding False and Unsupported Beliefs About Politics: Nature and Origins of Misperceptions”, *Political Psychology* 38 (February 2017): 127–50, doi:10.1111/pops.12394. Dan Kahan, The Politically Motivated Reasoning Paradigm, in *Emerging Trends in Social & Behavioral Sciences* (2016).

[2] Richard H. Thaler and Cass R. Sunstein, *Nudge: Improving Decisions about Health, Wealth, and Happiness*, Rev. and expanded ed (New York: Penguin Books, 2009).

[3] This strong emphasis on technology as the solution to fundamental broad social problems is the core of Morozov’s critique of Silicon Valley-centered progressivism. See Evgeny Morozov, *To Save Everything, Click Here: The Folly of Technological Solutionism*, Reprint edition (New York: Public Affairs, 2014).

[4] Gregory Ferenstein 11 08 15 11:00 AM, “The Politics of Silicon Valley”, *Fast Company*, November 8, 2015, <https://www.fastcompany.com/3053318/the-politics-of-silicon-valley>.

- [5] David Clark, "A Cloudy Crystal Ball – Visions of the Future", in *Proceedings of the Twenty-Fourth Internet Engineering Task Force*, ed. Megan Davies, Cynthia Clark, and Debra Legare (Cambridge: Massachusetts Institute of Technology, 1992), 539-545, <http://ietf.org/proceedings/prior29/ietf24.pdf>
- [6] Eric S. Raymond, *The Cathedral & the Bazaar: Musings on Linux and Open Source by an Accidental Revolutionary*, 1st ed (Beijing; Cambridge, Mass: O'Reilly, 1999), 30.
- [7] [https://en.wikipedia.org/wiki/Wikipedia:Ignore\\_all\\_rules](https://en.wikipedia.org/wiki/Wikipedia:Ignore_all_rules).
- [8] John Frederick Padgett and Walter W. Powell, eds., *The Emergence of Organizations and Markets* (Princeton: Princeton University Press, 2012).
- [9] Yochai Benkler, *The Penguin and the Leviathan*. Crown Business. 2011.
- [10] David Harvey, *The Condition of Postmodernity: An Enquiry into the Origins of Cultural Change* (Oxford [England]; Cambridge, Mass., USA: Blackwell, 1989), 35. James C. Scott, *Seeing like a State: How Certain Schemes to Improve the Human Condition Have Failed*, Nachdr., Yale Agrarian Studies (New Haven, Conn.: Yale Univ. Press, 2008).
- [11] Charles S. Maier, "Between Taylorism and Technocracy: European Ideologies and the Vision of Industrial Productivity in the 1920s", *Journal of Contemporary History* 5, no. 2 (1970): 27-61; Charles S. Maier, "The Politics of Productivity: Foundations of American International Economic Policy after World War II", *International Organization* 31, no. 04 (1977): 607-633; D. Bell, *Work and Its Discontents* (League for Industrial Democracy, 1956), <https://books.google.com/books?id=k8ETAQAAMAAJ>.
- [12] Maier, "Between Taylorism and Technocracy".
- [13] Alfred D. Chandler, *The Visible Hand: The Managerial Revolution in American Business*, 16. print (Cambridge, Mass.: Belknap Press of Harvard Univ. Press, 2002); James Ralph Beniger, *The Control Revolution: Technological and Economic Origins of the Information Society*, 5. print (Cambridge, Mass.: Harvard Univ. Press, 1997).
- [14] Maier, "Between Taylorism and Technocracy".
- [15] Ibid.
- [16] Harvey, *The Condition of Postmodernity*.
- [17] Jane Jacobs, *The Death and Life of Great American Cities*, Modern Library ed (New York: Modern Library, 1993).
- [18] Scott, *Seeing like a State*.
- [19] Michael J. Piore and Charles F. Sabel, *The Second Industrial Divide: Possibilities for Prosperity*, Nachdr. (New York: Basic Books, 2000).
- [20] Jane F. Levey, "Imagining the Family in U.S. Postwar Popular Culture: The Case of The Egg and I and Cheaper by the Dozen", *Journal of Women's History* 13, no. 3 (2001): 125-50, doi:10.1353/jowh.2001.0069; María Cristina Santana, "From Empowerment to Domesticity: The Case of Rosie the Riveter and the WWII Campaign", *Frontiers in Sociology* 1 (December 23, 2016), doi:10.3389/fsoc.2016.00016.
- [21] Benjamin Kline Hunnicutt, *Kellogg's Six-Hour Day, Labor and Social Change* (Philadelphia: Temple University Press, 1996).
- [22] Friedrich A. von Hayek, *The Road to Serfdom: Text and Documents*, Definitive ed, The Collected Works of F.A. Hayek, v. 2 (Chicago: University of Chicago Press, 2007), 95-96.
- [23] Ibid., 68.
- [24] Daniel Stedman Jones, *Masters of the Universe: Hayek, Friedman, and the Birth of Neoliberal Politics*, Updated edition with a New Foreword edition (Princeton, NJ: Princeton University Press, 2014); Steven Michael Teles, *The Rise of the Conservative Legal Movement: The Battle for Control of the Law, Princeton Studies in American Politics: Historical, International, and Comparative Perspectives* (Princeton, N.J: Princeton University Press, 2008).
- [25] Jones, *Masters of the Universe*; Teles, *The Rise of the Conservative Legal Movement*.
- [26] David Card, Thomas Lemieux, and W. Craig Riddell, "Unions and Wage Inequality", *Journal of Labor Research* 25, no. 4 (December 2004): 519-59; Richard B. Freeman, "Unionism and the Dispersion of Wages", *Industrial & Labor Relations Review* 34, no. 1 (1980): 3-23; L. Mishel, J. Schmitt, and H. Shierholz, "Wage Inequality: A Story of Policy Choices", *New Labor Forum* 23, no. 3 (September 1, 2014): 26-31, doi:10.1177/1095796014544325.
- [27] Nicole M. Fortin and Thomas Lemieux, "Institutional Changes and Rising Wage Inequality: Is There a Linkage?", *The Journal of Economic Perspectives* 11, no. 2 (1997): 75-96.

- [28] Yochai Benkler, "Winner-Take-All Ideology", working paper.
- [29] Jacob S. Hacker and Paul Pierson, *Winner-Take-All Politics: How Washington Made the Rich Richer-and Turned Its Back on the Middle Class*, 1st Simon & Schuster hardcover ed. (New York: Simon & Schuster, 2010).
- [30] Students for a democratic society, *Port Huron Statement* (1962). Available: [https://en.wikisource.org/wiki/Port\\_Huron\\_Statement](https://en.wikisource.org/wiki/Port_Huron_Statement)
- [31] Thomas S. Kuhn, *The Structure of Scientific Revolutions*, Fourth edition (Chicago#; London: The University of Chicago Press, 2012).
- [32] Benkler, *Winner-Take-All Ideology*.
- [33] Ira Katznelson, *When Affirmative Action Was White: An Untold History of Racial Inequality in Twentieth-Century America* (New York; London: W.W. Norton, 2006); Ira Katznelson, *Fear Itself: The New Deal and the Origins of Our Time*, First Edition (New York: Liveright Publishing Corporation, 2013).
- [34] Catharine A. MacKinnon, *Sexual Harassment of Working Women: A Case of Sex Discrimination* (New Haven: Yale University Press, 1979); Catharine A. MacKinnon, "Feminism, Marxism, Method, and the State: An Agenda for Theory", *Signs* 7, no. 3 (1982): 515-44; Catherine A. MacKinnon, *Feminism Unmodified: Discourses on Life and Law*, 9, printing (Cambridge, Mass.: Harvard Univ. Press, 1994).
- [35] NOW Statement of Purpose, 1966. Available: <http://now.org/about/history/statement-of-purpose/>
- [36] Dean Baker, Sarah Rawlins, and David Stein, *The Full Employment Mandate of the Federal Reserve: It's Origins and Importance*. CEPR, Fed Up, and the CPD, July 2017. Available <https://drive.google.com/file/d/0B96Y7zfqNdNoQZRbzc3dl84SktZbzZubXh0eTEtETI5R2xr/view>
- [37] Greta R. Krippner, *Capitalizing on Crisis: The Political Origins of the Rise of Finance* (Cambridge, Mass: Harvard University Press, 2011); Thomas Philippon and Ariell Reshef, "Wages and Human Capital in the US Financial Industry: 1909-2006" (National Bureau of Economic Research, 2009), <http://www.nber.org/papers/w14644>
- [38] Card, Lemieux, and Riddell, "Unions and Wage Inequality"; David Card and Alan B. Krueger, "Minimum Wages and Employment: A Case Study of the Fast Food Industry in New Jersey and Pennsylvania" (National Bureau of Economic Research, 1993), <http://www.nber.org/papers/w4509>
- [39] Facundo Alvaredo *et al.*, "The Top 1 Percent in International and Historical Perspective", *Journal of Economic Perspectives* 27, no. 3 (August 2013): 3-20, doi:10.1257/jep.27.3.3.
- [40] David Weil, *The Fissured Workplace: Why Work Became so Bad for so Many and What Can Be Done to Improve It* (Cambridge, Massachusetts: Harvard University Press, 2014).
- [41] Benkler, *Winner-Take-All Ideology*, MS 2017.
- [42] Mishel, Schmitt, and Shierholz, "Wage Inequality"; Joseph E. Stiglitz, "Reforming Taxation to Promote Growth and Equity", *Roosevelt Institute* 28 (2014): 14-16; Joseph E. Stiglitz, *Rewriting the Rules of the American Economy: An Agenda for Growth and Shared Prosperity*, First Edition (New York: W. W. Norton & Company, Independent Publishers Since 1923, 2016).
- [43] Bartholomew C. Watson, "Barcode Empires: Politics, Digital Technology, and Comparative Retail Firm Strategies", *Journal of Industry, Competition and Trade* 11, no. 3 (September 2011): 309-24, doi:10.1007/s10842-011-0109-2.
- [44] Jeremy Greenwood, Ananth Seshadri, and Mehmet Yorukoglu, "Engines of Liberation", *Review of Economic Studies* 72, no. 1 (January 2005): 109-33, doi:10.1111/0034-6527.00326; Daniele Coen-Pirani, Alexis León, and Steven Lugauer, "The Effect of Household Appliances on Female Labor Force Participation: Evidence from Microdata", *Labour Economics* 17, no. 3 (2010): 503-513; German Cubas and others, "Distortions, Infrastructure and Labor Supply in Latin American Countries", *Documento de Trabajo/FCS-DE*; 35/10, 2010, <http://cienciassociales.edu.uy/departamentodeeconomia/wp-content/uploads/sites/2/2013/archivos/3510.pdf>; Tewari, I. and Y Wang, Durable Ownership, Time Allocation and Female Labor Force Participation: Evidence from China's Home Appliances to the Countryside Rebate (Apr. 2016). [http://faculty.som.yale.edu/ishanitewari/documents/LFP\\_HAGC\\_TewariWang.pdf](http://faculty.som.yale.edu/ishanitewari/documents/LFP_HAGC_TewariWang.pdf)
- [45] Yochai Benkler, "Degrees of Freedom, Dimensions of Power", *Daedalus* 145, no. 1 (January 2016): 18-32, doi:10.1162/DAED\_a\_00362.
- [46] Barbara Van Schewick, *Internet Architecture and Innovation* (Cambridge, Mass.; London: MIT Press, 2012).
- [47] <https://www.wired.com/2010/05/0526bill-gates-internet-memo/>

- [48] Yochai Benkler, "Peer Production and Cooperation", in *Handbook on the Economics of the Internet*, 2016.
- [49] Carl Shapiro and Hal R. Varian, *Information Rules: A Strategic Guide to the Network Economy* (Boston, Mass: Harvard Business School Press, 1999).
- [50] Thomas W. Hazlett, *The Wireless Craze, the Unlimited Bandwidth Myth, the Spectrum Auction Faux Pas, and the Punchline to Ronald Coase's "Big Joke": An Essay on Airwave Allocation Policy*, 14 Harv. J.L. & Tech. 335 491 (2001).
- [51] For a brief intellectual history of the debate, see Yochai Benkler, *Overcoming Agoraphobia: Building the Commons of the Digitally Networked Environment*, 11 Harv. J. L. & Tech. 287 (1998).
- [52] Van Schewick, *Internet Architecture and Innovation*; Brett M. Frischmann, *Infrastructure: The Social Value of Shared Resources* (Oxford University Press, 2012).
- [53] Yochai Benkler, "Open Wireless vs. Licensed Spectrum: Evidence from Market Adoption", *Harv. JL & Tech.* 26 (2012): 69.
- [54] Mancur Olson; Downs.
- [55] David Clark, *A Cloudy Crystal Ball – Visions of the Future* <http://ietf.org/proceedings/prior29/IETF24.pdf>
- [56] Joseph Michael Reagle, *Good Faith Collaboration: The Culture of Wikipedia, History and Foundations of Information Science* (Cambridge, Mass: MIT Press, 2010).
- [57] Van Schewick, *Internet Architecture and Innovation*.
- [58] Benkler, "Open Wireless vs. Licensed Spectrum: Evidence from Market Adoption".
- [59] For a review of this literature see Benkler, Law, Innovation, and Collaboration in Networked Society, *forthcoming Annual Rev. of L. & Soc. Sci.* (2017) <http://www.annualreviews.org/doi/abs/10.1146/annurev-lawsocsci-110316-113340>; full text of preprint: <https://dash.harvard.edu/bitstream/handle/1/30704158/Benkler%20Law%20and%20Innovation%20%20Collaboration%20working%20paper%2011182016.pdf?sequence=1>
- [60] For an excellent review see Bessen J, Nuvolari A. 2016. Knowledge sharing among inventors: Some historical perspectives in D Harhoff, K Lakhani, Harhoff D, Lakhani KR, eds. 2016. *Revolutionizing innovation: Users, communities, and open innovation*. Cambridge: MIT Press pp. 135-55.
- [61] Walter W. Powell, "Neither Market nor Hierarchy: Network Forms of Organization", *Research in Organizational Behavior* 12 (1990): 295-336; Walter W. Powell, Kenneth W. Koput, and Laurel Smith-Doerr, "Interorganizational Collaboration and the Locus of Innovation: Networks of Learning in Biotechnology", *Administrative Science Quarterly* 41, no. 1 (March 1996): 116, doi:10.2307/2393988.
- [62] Saxenian A. 1996. *Regional advantage*. Cambridge: Harvard University Press.
- [63] Breschi S, Lenzi C. 2016. Co-invention networks and inventive productivity in US Cities. *J of Urban Econ.* 92. Schilling MA, Phelps CC. 2007. Interfirm collaboration networks: The impact of large-scale network structure on firm innovation. *Manag. Sci.* 53:1113-26.
- [64] Owen-Smith J, Powell WW. 2004. Knowledge networks as channels and conduits: The effects of spillovers in the Boston biotechnology community. *Organ. Sci.* 15(1):5-21.
- [65] Gilson RJ. 1999. The legal infrastructure of high technology industrial districts: Silicon Valley, Route 128, and covenants not to compete. *NYU Law Rev.* 74(3):575-629; Hyde A. 2003. *Working in Silicon Valley: Economic and legal analysis of a high-velocity labor market*. Armonk, New York: M.E. Sharpe; Marx M, Strumsky D, Fleming L. 2009. Mobility, skills, and the Michigan non-compete experiment. *Manag. Sci.* 55: 875-79 Marx M, Singh J, Fleming L. 2015. Regional disadvantage? Employee non-compete agreements and brain drain. *Res. Policy.* 44.
- [66] Von Hippel von Hippel E. 2005. *Democratizing innovation*. Cambridge: MIT Press; von Hippel E. 2016. *Free innovation*. Cambridge: MIT Press. For a sampling of the diverse paths this literature has taken, see Harhof and Lakhani, *supra*.
- [67] For one of the earliest such studies see, e.g., Pamela Samuelson, Benson *Revisited: The Case against Patent Protection for Algorithms and Other Computer Program-Related Inventions*, 39 Emory L J 1025 (1990); Pamela Samuelson, *Should Program Algorithms Be Patented?*, 33 Comm ACM 23 (1990).
- [68] Litman, *Digital Copyright*; Boyle, *The Public Domain*; Lerner and Jaffe, *Innovation and its Discontents*. Lemley & Burke; Lemley & Cohen.
- [69] Yochai Benkler, "Coase's Penguin, Or, Linux and 'The Nature of the Firm'", *Yale Law Journal*, 2002, 369-446; von Hippel E, von Krogh G. 2003. Open source software and the "private-collective" innovation model: Issues for organization science. *Organ. Sci.* 14(2):209-23.

- [70] Samuel Bowles and Herbert Gintis, "Social Preferences, Homo Economicus, and Zoon Politikon", *The Oxford Handbook of Contextual Political Analysis*, 2006, 172-186; Ernst Fehr and Herbert Gintis, "Human Motivation and Social Cooperation: Experimental and Analytical Foundations", *Annual Review of Sociology* 33, no. 1 (August 2007): 43-64, doi:10.1146/annurev.soc.33.040406.131812; Dirk Helbing and Herbert Gintis, "Homo Socialis: An Analytical Core for Sociological Theory", *Review of Behavioral Economics* 2, no. 1-2 (July 29, 2015): 1-59, doi:10.1561/105.00000016.
- [71] <http://nymag.com/news/features/45938/> (Aug. 1976).
- [72] Richard Dawkins, *The Selfish Gene* (New York: Oxford University Press, 1976), 3.
- [73] Martin A. Nowak, "Five Rules for the Evolution of Cooperation", *Science* 314, no. 5805 (2006): 1560-1563.
- [74] Varda Liberman, Steven M. Samuels, and Lee Ross, "The Name of the Game: Predictive Power of Reputations versus Situational Labels in Determining Prisoner's Dilemma Game Moves", *Personality and Social Psychology Bulletin* 30, no. 9 (September 2004): 1175-85, doi:10.1177/0146167204264004.
- [75] Samuel Bowles and Sandra Polanía-Reyes, "Economic Incentives and Social Preferences: Substitutes or Complements?", *Journal of Economic Literature* 50, no. 2 (June 2012): 368-425, doi:10.1257/jel.50.2.368; Samuel Bowles and Sung-Ha Hwang, "Social Preferences and Public Economics: Mechanism Design When Social Preferences Depend on Incentives", *Journal of Public Economics* 92, no. 8-9 (August 2008): 1811-20, doi:10.1016/j.jpubeco.2008.03.006.
- [76] Lucian Bebchuk and Jesse Fried, *Pay without Performance: The Unfulfilled Promise of Executive Compensation*, 1. Harvard Univ. Press paperback ed (Cambridge, Mass.: Harvard Univ. Press, 2006); B. S. Frey and Margit Osterloh, "Yes, Managers Should Be Paid Like Bureaucrats", *Journal of Management Inquiry* 14, no. 1 (March 1, 2005): 96-111, doi:10.1177/1056492604273757.
- [77] Carola Frydman and Dirk Jenter, "CEO Compensation" (National Bureau of Economic Research, 2010), <http://www.nber.org/papers/w16585>
- [78] Michael C. Jensen and Kevin J. Murphy, "The Earnings Management Game: It's Time To Stop It", *SSRN Electronic Journal*, 2012, doi:10.2139/ssrn.1894304.
- [79] Jean-Louis Arcand, Enrico Berkes, and Ugo Panizza, "Too Much Finance?", 2012, [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2127541](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2127541); Stephen G. Cecchetti and Enisse Kharroubi, "Why Does Financial Sector Growth Crowd Out Real Economic Growth?", 2015, [http://papers.ssrn.com/sol3/Papers.cfm?abstract\\_id=2564267](http://papers.ssrn.com/sol3/Papers.cfm?abstract_id=2564267)
- [80] Jones, *Masters of the Universe*.
- [81] Yochai Benkler, "Networks of Power, Degrees of Freedom", *International Journal of Communication* 5 (2011): 39.
- [82] James Boyle, *Shamans, Software, and Spleens: Law and the Construction of the Information Society*, repr., 1. paperback ed (Cambridge, Mass.: Harvard Univ. Press, 1997).
- [83] "The Social Responsibility of Business Is to Increase Its Profits, by Milton Friedman", accessed August 4, 2016, <http://www.colorado.edu/studentgroups/libertarians/issues/friedman-soc-resp-business.html>; Michael C. Jensen and William H. Meckling, "A Theory of the Firm: Governance", *Journal of Financial Economics* 3, no. 4 (1976): 3-5-360.
- [84] Weil, *The Fissured Workplace*; Gerald F. Davis, *Managed by the Markets: How Finance Reshaped America* (Oxford#; New York: Oxford University Press, 2009).
- [85] Jean-Marc Fournier, Isabelle Wanner, and Isabell Koske, "Less Income Inequality and More Growth – Are They Compatible? Part 2. The Distribution of Labour Income", OECD Economics Department Working Papers, (January 10, 2012), [http://www.oecd-ilibrary.org/economics/less-income-inequality-and-more-growth-are-they-compatible-part-2-the-distribution-of-labour-income\\_5k9h2975rhhf-en](http://www.oecd-ilibrary.org/economics/less-income-inequality-and-more-growth-are-they-compatible-part-2-the-distribution-of-labour-income_5k9h2975rhhf-en)
- [86] Jon Bakija *et al.*, "Jobs and Income Growth of Top Earners and the Causes of Changing Income Inequality: Evidence from US Tax Return Data", Unpublished Manuscript, Williams College, 2012, <http://piketty.pse.ens.fr/files/Bakijaetal2010.pdf>
- [87] Zeynep Ton, "The Hidden Risk in Cutting Retail Payroll", *Harvard Business Review*, accessed October 22, 2015, <https://hbr.org/2008/03/the-hidden-risk-in-cutting-retail-payroll>; Zeynep Ton and Robert S. Huckman, "Managing the Impact of Employee Turnover on Performance: The Role of Process Conformance", *Organization Science* 19, no. 1 (February 2008): 56-68, doi:10.1287/orsc.1070.0294
- [88] Michael Beer, Russell A. Eisenstat, and Nathaniel Foote, *High Commitment, High Performance: How to Build a Resilient Organization for Sustained Advantage*, 1st ed (San Francisco, CA: Jossey-Bass, 2009).

- [89] Charles Heckscher and Paul Adler, *The Corporation as a Collaborative Community: Organization in the Knowledge-Based Economy* (Oxford: Oxford University Press, 2005).
- [90] Carl Shapiro and Joseph Stiglitz, "Equilibrium Unemployment as a Worker Discipline Device", *American Economic Review* 74, no. 3 (1984): 433-44.
- [91] Frey and Osterloh, "Yes, Managers Should Be Paid Like Bureaucrats".
- [92] Bruce Western and Jake Rosenfeld, "Unions, Norms, and the Rise in US Wage Inequality", *American Sociological Review* 76, no. 4 (2011): 513-537.
- [93] Carola Frydman and Raven Molloy, "Pay Cuts for the Boss: Executive Compensation in the 1940s", *The Journal of Economic History* 72, no. 01 (2012): 225-251.
- [94] Lawrence Lessig, *Code: And Other Laws of Cyberspace*, Nachdr. (New York: The Perseus Books Group, 2002).
- [95] Benkler, *Winner-take-all Ideology*.
- [96] Benyamin Appelbaum, *Face to Face with the Fed, Workers Ask for More Help*. NYT Nov. 14, 2014. <https://www.nytimes.com/2014/11/15/business/economy/face-to-face-with-the-fed-workers-say-the-economy-needs-more-help.html>
- [97] Yian Q. Mul, *Hillary Clinton to support Federal Reserve change sought by liberals*, Wash. Post May 12, 2016. [https://www.washingtonpost.com/news/work/wp/2016/05/12/hillary-clinton-to-support-federal-reserve-change-sought-by-liberals/?utm\\_term=.fd5dce7a3295](https://www.washingtonpost.com/news/work/wp/2016/05/12/hillary-clinton-to-support-federal-reserve-change-sought-by-liberals/?utm_term=.fd5dce7a3295)
- [98] Ajuntament de Barcelona, [http://www.socioeco.org/bdf\\_fiche-document-5461\\_en.html](http://www.socioeco.org/bdf_fiche-document-5461_en.html)
- [99] Paul D. Aligica and Vlad Tarko, "Polycentricity: From Polanyi to Ostrom, and Beyond: POLYCENTRICITY", *Governance* 25, no. 2 (April 2012): 237-62, doi:10.1111/j.1468-0491.2011.01550.x.
- [100] Nixon vs. Missouri Municipals.
- [101] Trebor Scholz, "Platform Cooperativism", *Challenging the Corporate Sharing Economy*. New York, NY: Rosa Luxemburg Foundation, 2016, [http://www.rosalux-nyc.org/wp-content/files\\_mf/scholz\\_platformcooperativism21.pdf](http://www.rosalux-nyc.org/wp-content/files_mf/scholz_platformcooperativism21.pdf)
- [102] Michel Bauwens and Vasilis Kostakis, "From the Communism of Capital to Capital for the Commons: Towards an Open Co-Operativism", *Triple C* 12, no. 1 (2014): 356-61.
- [103] American Customer Satisfaction Index, National, Sector, and Industry Results. <http://www.theacsi.org/national-economic-indicator/national-sector-and-industry-results>
- [104] Craig, Ben and John Pencavel, *Participation and Productivity: A comparison of worker cooperatives and conventional firms in the plywood industry*, Brookings Papers, Microeconomics. 1995. [https://www.brookings.edu/wp-content/uploads/1995/01/1995\\_bpeamicro\\_craig.pdf](https://www.brookings.edu/wp-content/uploads/1995/01/1995_bpeamicro_craig.pdf)
- [105] University of Wisconsin Center for Cooperatives, *Farm Supply and Marketing*. <http://reic.uwcc.wisc.edu/agricultural/>
- [106] Y. Benkler, "Peer Production, the Commons, and the Future of the Firm", *Strategic Organization*, June 7, 2016, doi:10.1177/1476127016652606.
- [107] Daniela Retelny *et al.*, "Expert Crowdsourcing with Flash Teams" (ACM Press, 2014), 75-85, doi:10.1145/2642918.2647409.
- [108] Landini, F. "Technology, Property Rights and Organizational Diversity in the Software Industry", *Structural Change and Economic Dynamics*, vol. 23, n. 2 (2012): 137-150 offers an analogous dynamic model where different equilibria, in software development, based on diverging choices regarding the basic institutional framework.