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The Mutualist Economy: A New Deal for Ownership

Executive Summary

This essay proposes a new model of personal and public wealth building that can address the current crisis of inequality in the United States. We place contemporary American wealth inequality into its historical context by tracing how federal government policies have worked to support personal and public wealth building across three periods: the First Industrial Revolution of the mid-19th century, the Second Industrial Revolution of the early 20th century, and the Information and Communication Technology revolution of the late-20th century. We then suggest a series of potential governmental policies that can help to ensure a more equitable wealth distribution in the future. Our proposed “mutualist” model of political economy would allow for the large-scale diffusion of productivity gains that may follow the installation of deployment of the next wave of general-purpose technologies. This new social contract will move beyond the welfare state’s focus on insurance toward a more radical notion of shared ownership of returns on capital via universal individual capital endowments and new public investment channels that control shares in firms and intellectual property.

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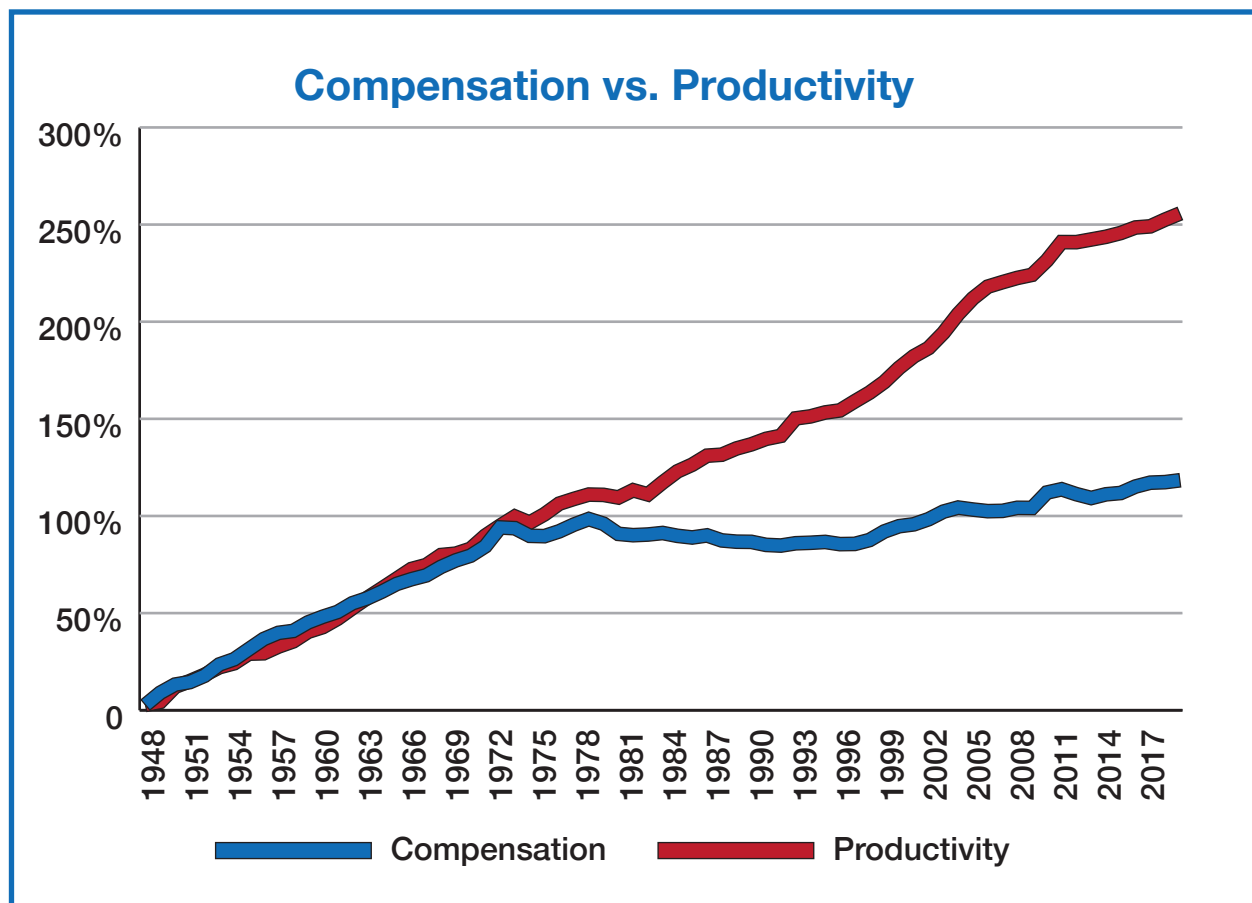
Drs. Gilman and Feygin thank Leila Lorenzo for her extraordinary work in providing research assistance with this paper.

Over the past few decades, capitalism has conquered the world. Market economies are now established in virtually every country on earth. Since the turn of the century, aggregate global wealth has nearly tripled, from \$112 trillion to \$325 trillion. Dramatic new technological innovations have created a myriad of new consumer gadgets and services, and trade and finance have forged an integrated global economy. Moreover, poverty has plunged: since 2000, the number of people worldwide living in extreme poverty (defined according to the “international poverty line” of \$1.90/day of income) has fallen from about 30% to less than 9% of the world’s population. By any standard,

the era of financial globalization has been a time of extraordinary growth in aggregate global prosperity.¹

The dominant mode of economic governance over this period has been what we refer to as “neoliberal,” which we define as the political prioritization of capital appreciation over wage growth. Prioritizing capital gains and holding wages in check provided the corporate profits necessary to fund the first stage of the information and communication technology (ICT) revolution. These processes significantly increased productivity growth in the last decades of the 20th century. Those in favor of this model of economic governance argued that gains to capital, by

Figure 1: Compensation vs. Productivity



Josh Bivens and Lurance Mishel, “Understanding the Historic Divergence Between Productivity and a Typical Worker’s Pay: Why It Matters and Why It’s Real,” Economic Policy Institute (blog), accessed 27 May 2019, <https://www.epi.org/publication/understanding-the-historic-divergence-between-productivity-and-a-typical-workers-pay-why-it-matters-and-why-its-real/>.

increasing total wealth, would ultimately benefit all stakeholders.² The idea was to build an “ownership society,” in which the middle class would share in growing prosperity by directly owning capital assets. For the American middle class, this asset has primarily been housing, which has appreciated rapidly in value over the last four decades. Even though wages stagnated, borrowing against the growth in the nominal value of one’s house offered middle-class households a way to maintain consumption levels.³

Despite the success of this model from the mid-1980s through the early 2000s, there is now a consensus that the American neoliberal model of economic governance has exhausted its possibilities. The economic dynamism spurred by the first wave of the ICT revolution ended in the dot-com and subsequent housing bubbles, which in turn precipitated the Global Financial Crisis of 2007-2008 and the Great Recession of 2008-9. Since then, economic growth has remained slow and uneven: whereas annual productivity growth since the end of WWII has averaged around 2.3% since the Great Recession productivity growth has averaged only 1.3%.⁴ A decade of economic stagnation, asset price inflation, and consequently growing inequality has destroyed the ability of the American middle class to build personal wealth.

If the combination of stagnation and consumer-price inflation, so-called stagflation, defined the economic governance crisis of the 1970s, the crisis of our era is characterized by “stag-quality,” combining stagnation and inequality. This stag-quality is not only about growing disparities in income, but more importantly, about the inequality of access to asset ownership. Just as overcoming the stagflation of the 1970s entailed a radical overhaul of the institutions of capitalist economic management, resulting in the institutionalization of neoliberalism, so overcoming stag-quality necessitates another re-invention of capitalist institutions. Above all, it requires reshaping how assets are distributed to include all those that have participated in their creation, not just those who commercialized them.

In this essay, we take a historical approach, maintaining that while technological innovation is central to the evolution of capitalism, what matters more are the institutions governing ownership claims to the wealth generated by technological and business innovation – in essence, how technologies become capital and who can make claims to the resulting cash flows. We contend that *the central challenge of contemporary economic governance is to design new institutions of asset ownership that give ordinary people access to*

Table 1: Waves of Technical Change and Economic Governance

Dates	Governance Model	Core General Purpose Technologies	Personal Wealth-Building Institutions	Public Wealth-Building Institutions
1860s-1900s	Liberalism	Textiles, Railroads, Factories, Canals	Homesteading	Land Grant Colleges
1920s-1960s	Corporatism	Steel, Electricity, Automobiles, Petrochemicals, Assembly Line	30-year fixed mortgage	Electrification, corporate wage bargaining
1970s - now	Neoliberalism	Microprocessors, Telecommunications, Internet, Knowledge work	Financialized Housing 401(k)s	DARPA SBIR
2020s?	Mutualism	Biotechnology? Artificial Intelligence? Renewable energy? Cryptocurrencies?	Baby Bonds? Postal Banking? Government Retirement Accounts?	SWFs? Public Intellectual Property? Public Investment Banks?

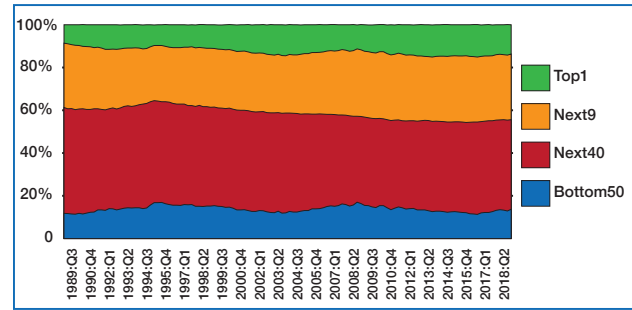
wealth creation at its source. Rather than wait for wealth to be produced in an unequal way, and then attempt to use tax policy to redistribute that wealth, our institutions should “pre-distribute” that wealth at the point of its production through the mutual ownership of wealth-producing assets. Such institutions should be designed both to accelerate productivity growth and to ensure the wide distribution of the fruits of this growth.

Our paper considers the following: first, we examine how the American government has historically developed policies to promote the broad distribution of wealth. Second, we evaluate why our current approaches are no longer working as intended. Third, we propose a new “mutualist” approach to wealth-sharing that we believe can improve the governance of an economy whose technological underpinnings are undergoing radical transformation. *Mutualism, as we define it, means ensuring that the ownership of productive assets is shared broadly by all those who participate in the generation of economic growth.* Table 1, on page 4, displays these waves of technological transformations, their economic governance models, and systems of wealth distribution as a set of stylized facts.

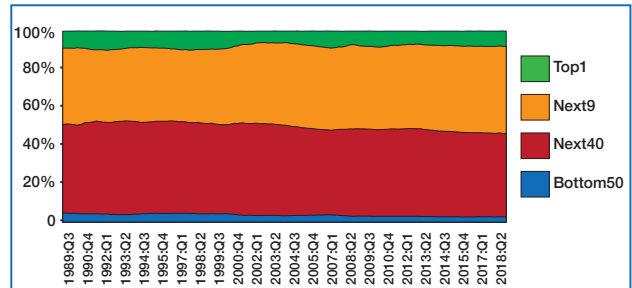
Historically, every wave of general-purpose technologies (GPTs) has accompanied a fundamental reordering of work and social relations, and of where and how wealth is generated. We further assert that maximizing the benefits of these shifts requires us to build new models of economic governance and to reconceptualize the institutions of asset accumulation. *Successful economic governance models create complementary schemas for personal and public wealth-building that together facilitate the installation and deployment of waves of GPTs, and the wide distribution of the benefits thereof.*

Despite the last decade’s stagnating productivity and growing inequality, there are compelling reasons to be optimistic about

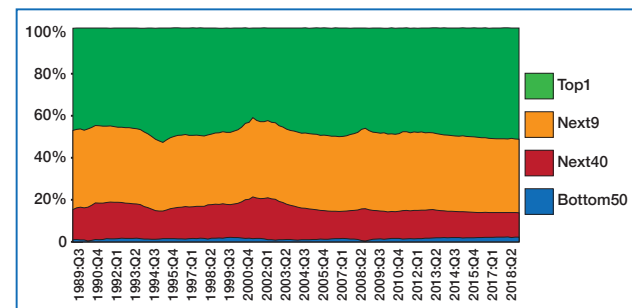
Figure 2: The Distributional Financial Accounts of the United States
A. Real Estate Ownership by Income Group



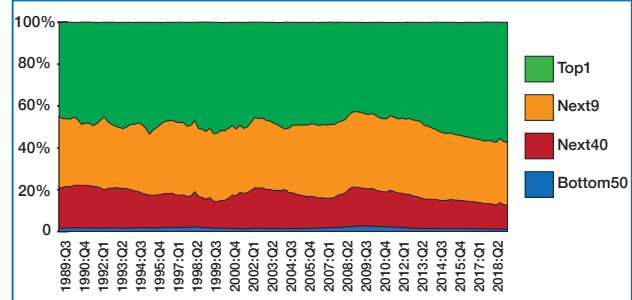
B. Pension Entitlements and Savings by Income Group



C. Corporate Equity and Mutual Funds by Income Group



D. Non-Corporate Business Equity



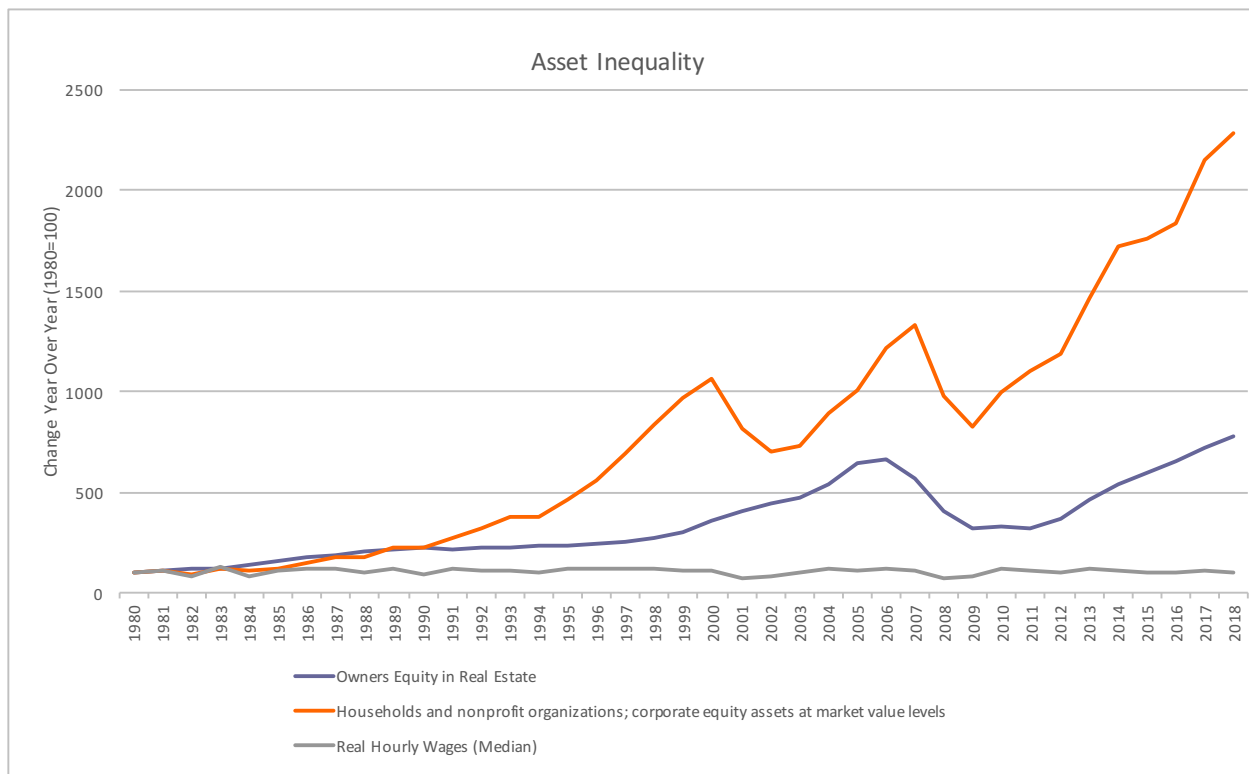
Source: Michael Batty, et al. (2019). “Introducing the Distributional Financial Accounts of the United States,” Finance and Economics Discussion Series 2019-017. Washington: Board of Governors of the Federal Reserve System: 29.

potential novel sources of growth that may arrive via an arriving suite of innovative technologies. The combination of GPTs like artificial intelligence, biotech, and nanotechnology, as well as advances in robotics and renewable energy, is brimming with promise. It portends not only the emergence of trailblazing industries but also has the potential to revolutionize virtually all existing ones in ways that could dramatically increase economic productivity. If global aggregate wealth tripled over the last generation, these technologies might very well enable a further redoubling or tripling of aggregate global wealth, and possibly in a much less resource-intensive manner as compared to previous generations.⁵ At the same time, and as with previous waves of GPTs, such as the steam engine, railroads, electricity, and the automobile, these widely-anticipated pathbreaking technologies have the potential to shatter existing economic and social structures. As it stands, discussions of the oncoming technological

revolution have focused on the potential loss of jobs in the face of automation. We believe that the more urgent task for policymakers is to ensure that the value added by the new technologies is widely shared, and not captured only by a tiny elite in control of the intellectual property and capital required to deploy it. If the new technologies are to be a net positive, we must reconstruct our model of economic governance and ownership so that they become the basis for innovative forms of mutually-shared prosperity. We believe that building a “New Deal for Ownership” means promoting broad access to the material benefits associated with asset ownership.

So far, especially on the American left, proposals to alleviate inequality have largely focused on boosting minimum wages and raising top marginal income tax rates. Such policies are vital, but they do not address the root cause of wealth inequality – namely, the uneven distribution of different kinds of wealth-building assets.⁶ As the

Figure 3: Returns on Wealth-Building Assets



Source: The Federal Reserve Financial Accounts of the United States, Economic Policy Institute, Authors' Calculations.

Federal Reserve Distributed Financial Accounts (DFAs) presented in Figure 2 indicate, much of the inequality that has accumulated over the last thirty years is a result of the differences in the types of assets owned by the middle class and the rich. The bulk of the US middle class – as indicated by the 40th to 80th percentile of the income distribution – holds most of its wealth in housing. As one rises from the 80th to the 99th percentile of the distribution, more wealth is held in business-derived assets such as stocks, bonds, or stakes in private companies. By the time you reach the top “One Percent” of the American income distribution, more than 85% of their wealth is held in high return corporate assets (Figure 3). To summarize: the poor have no assets and thus get no returns; the middle classes hold mostly housing assets, which receive middling returns; and the rich mostly own equity in businesses, which yield the greatest returns. The net result, as the *Wall Street Journal* recently noted, is that “the bottom half of all U.S. households, as measured by wealth, have only recently regained the wealth lost in the 2007-2009 recession and still have 32% less wealth, adjusted for inflation, than in 2003, according to recent Federal Reserve figures. The top one percent of households have more than twice as much as they did in 2003.”⁷ In sum, the social structure of asset ownership thus continually amplifies the existing pattern of wealth inequality.⁸

Contrary to the dogma of neoliberalism’s cheerleaders, this pattern of asset distribution is not “a natural outcome of the market.” Rather, it is the result of deliberate policy choices made since the 1970s.⁹ These policies enforced a low consumer-price inflation environment while accelerating asset price inflation. This pattern is exemplified by the relentless celebration of new stock market records, despite the fact that few Americans own very much stock. These policies have furthermore encouraged financial speculation across all economic sectors on the theory that asset valuation and real economic productivity are

somehow inherently linked. And until the Great Recession, these assumptions remained quite believable, celebrated by soon-to-be-named-Federal Reserve Chairman Ben Bernanke as “The Great Moderation.”¹⁰ Now, however, after a decade of stagnating productivity, it has become clear that the same policy choices that fueled the late 20th century “boom times” have run aground. Companies are prioritizing shareholder value and balance sheet management, resulting in stalled economic growth and retarded deployment of new technologies.¹¹

Thus, in addition to addressing issues of unequal wealth distribution, *we also need government policies designed to ensure that the next great wave of asset-building, based on emerging GPTs, distributes its benefits as widely as possible.* The prospective GPTs create an opportunity to develop new forms of personal and public wealth building. Whether we succeed in doing so will largely determine whether the United States can spur a new technological revolution that carries lasting and broadly-shared positive economic effects. Without addressing the problem of wealth distribution, we face the prospect of these innovations never being deployed to meet the big challenges of our time. Just as new technologies engender new forms of wealth, the distribution of wealth informs the direction of innovation. The concentration of capital in fewer hands leads to a search for outsized, immediate returns, which favors the overvaluation of financial assets over investment into long term, large scale projects that can have long term impact on productivity and broad wealth building.

Using our historical survey, we will propose that policymakers formulate an ecosystem of public and personal wealth-building assets that captures cash flows from production at the point of its production. These new programs would form a set of “supply-side” policies that address the problem of inequality by directly impacting legal and institutional instruments that shape

the direction of accumulation.¹² Some of these instruments might include:

- A sovereign wealth fund that owns equity shares in American companies to capture capital gains for the public
- A program of joint public-private ownership of government-funded patents
- Public investment banks that help create markets for investments into public infrastructure
- “Baby bonds” issued to citizens at birth to help pay for education, housing, and other needs
- A system of public savings banks that guarantee community development and financial inclusion
- Guaranteed retirement accounts that allow employers and employees to contribute to a large, universal public pension fund that uses its size and professional management to leverage investments in excess of current retirement schemes and provide a guaranteed annuity return at retirement

Every successive model of capitalism is born from the crisis of the previous paradigm. The death agonies of the current neoliberal order began with the Global Financial Crisis in 2007. The contours of the subsequent model will inevitably arise from the ruins of the previous system, as policies and people optimized for one set of socio-technical conditions are reformed to adjust to a new world. But achieving such adjustments depends on the capacity of political leaders to reform their economic governance institutions to support forms of production permitted by changing technological paradigms. As such, this essay will first outline the succession of various economic governance paradigms over the past century and a half in the United States. It will examine key legislative and institutional reforms that took place that allowed for the re-invention of asset ownership and economic governance. And finally it will

then diagnose the current moment and suggest modes of rethinking the asset ownership models we have inherited from the neoliberal era with a view to simultaneously reducing wealth inequality and accelerating the deployment of productivity-enhancing frontier technologies.

The Morrill Land Grant Act and the Homestead Act: The First Universal Basic Capital

The central political conflict in the nineteenth-century United States, namely the fight over slavery, was among other things, a battle over the role of government in supporting wealth generation. On one side stood the South whose source of wealth took the form of enslaved persons. By one estimate on the eve of the Civil War, enslaved persons comprised 15-20% of all the personal wealth in the United States.¹³ Southern politicians envisioned a limited economic role for government, focused mainly on protecting and extending the property rights of slaveholders. On the other side stood the North, whose growing wealth was based on the fruits of what historians now term the First Industrial Revolution, with its mechanized factory production and transportation innovations such as canals and railroads. Despite this vast new source of wealth, for a young democracy, the prospect of an economy based on “satanic mills” staffed by an immiserated and immobilized working class challenged the ideal of the free producer so central to early American thought. Indeed, a key component of the South’s case against the North was that the “wage slavery” of the burgeoning industrial system was worse than their form of supposedly paternalistic chattel slavery. Under these circumstances, politicians in the North were rapidly developing a different view of the role of government in supporting personal and public wealth building. For Abraham Lincoln and many members of the newly-founded Republican Party, limiting the expansion of slavery was at the start less about defending the human

rights of African Americans than about opening up space for a commercial society based on what historian Eric Foner described as an ideology of “Free Soil, Free Labor, and Free Men.”¹⁴

What most concerned these leaders was what ought to be done with the vast tracts of federally-owned land in the West whose Native American population the government was rapidly removing. The issue was not merely whether these new territories should be ‘slave’ or ‘free.’ Indeed, politicians were at odds over how to best to use these public lands: should Congress sell them to the highest bidder to raise revenues, thereby enabling the reduction of deficits and tariffs? Should those revenues instead go toward internal improvements? Or alternately, should these lands be handed out at low cost to settlers who could farm the land and improve their personal lot in life? For already wealthy land- and slave-owners, this seemed like the most appealing prospect, as it would further entrench their own privileges by lowering their taxes and limiting land ownership. In 1858, Justin Morrill, a founder of the Republican Party and U.S. Senator from Vermont, proposed yet another approach to thinking about public land: that it could be used to fund public goods directly. When the Southern Democrats exited the Union in 1861, the Republicans took advantage of their now-unfettered political control in Washington to pass both the Morrill Land Grant and Homestead Acts, which together would revolutionize the late nineteenth century US government’s support for public and personal property ownership.

Long considered one of the most farsighted and successful pieces of legislation in American history, the Morrill Act was a response to the First Industrial Revolution’s expansion of small manufacturing and commercial farming, which caused demand for trained engineers and agronomists to soar.¹⁵ The Morrill Act granted states control over designated federally-owned lands. States could use this land either as a physical site for constructing agricultural colleges

or to seed college endowments from land sales or rents. From the beginning, land grant universities understood their mission as two-fold. First, universities were needed to create better citizens by bestowing students with a modern liberal arts education. Second, they were responsible for building a corps of technically-trained leaders for a rapidly industrializing country. In a speech on the twentieth anniversary of the Act, Senator Morrill explained that “the land grant colleges were founded on the idea that higher and broader education should be placed in every state within reach of those whose destiny assigns them to.” Democratizing access to education would “open the door to a liberal education for this large class at a cheaper cost from being close at hand and tempt them by offering not only a liberal education but something more applicable for the productive employment of life.” Senator Morrill dismissed those who saw the land grants as government intrusion into private affairs, explaining that “leaving the cause of education” to “private benevolence” could not be the “doctrine of the founding fathers” who themselves had been educated in universities like Harvard and Yale, which also had been endowed by then-colonial legislatures.¹⁶ Today, there are over one hundred so-called land grant universities, at least one in every state and territory. These include major public research universities such as Ohio State University, Colorado State University, and the University of California, as well as several state-funded private institutions, such as Cornell University and the Massachusetts Institute of Technology. To this day, the land grants universities continue to provide broad public economic benefits through their educational and research missions.

While the Land Grant Act used public resources to invest in human capital, the Homestead Act, also passed by the Lincoln administration in 1862, used these same resources to fund personal wealth building at the time.

The Homestead Act ended the debate over how to distribute federal lands in the West by constructing a model in which settlers would be eligible to receive up to 160 acres of free land. If a settler remained on that land and improved it for five years, he would gain private title to it. Over the next 65 years, the US federal government granted over 1.6 million homesteads, distributing over 270 million acres of federal land to private ownership, more than the land area of Texas and California combined. According to one study, tens of millions of Americans alive today still enjoy the fruits of the personal wealth-building authorized by the Homestead Act.¹⁷ The Homestead Act was more than just an effective wealth-building strategy for millions of American families. It would become critical to the national mythology about how American families are supposed to establish themselves, namely, by owning a plot of their own land. This ideal has been the subject of a massive nostalgia industry and partially explains the romance of the suburban home – a romance which in turn would underpin the main middle-class wealth-building policy of the 20th century: the private ownership of a single-family home.

The Homestead Act and the Land Grant Act together gave rise to a new model of American economic citizenship, suitable for a country undergoing rapid industrialization and commercialization. By rejecting the incumbent elites and wealth-building strategy of the old slaveholding order, these acts mobilized the resources of the federal government to empower a new generation of economic winners. As such, the acts also offer a framework for thinking about government asset-building policies in an age of political and technological transition: ensuring broad access to capital in support of personal wealth-building and creating public goods to expand the state capacity for equitable asset distribution.

The New Deal and the Birth of Middle-Class Wealth Building

Though often ad hoc and contradictory, the so-called New Deal policies of the Franklin D. Roosevelt administration (1933-1945) formed the framework for the contemporary American welfare state and forged a new pattern of asset ownership. From revisions in labor law to the establishment of Social Security, the Roosevelt administration's New Deal recast American industrial relations and Americans' economic relationship with the federal government.¹⁸ The New Deal also fundamentally transmuted how Americans built wealth, as the federal government took on novel coordinating roles in financial markets. The Federal government organized a series of schemes to lower the cost of financing both public goods and personal wealth building. The goal of these policies was to ensure financial stability for the American middle class and broaden the beneficiaries of economic growth. First, the Roosevelt administration initiated a legal and economic basis for financially accessible and stable personal homeownership.¹⁹ Second, it aimed to distribute the era's productivity-enhancing technologies to the country's most disadvantaged regions. In doing so, it restructured the American economy so that it could take full advantage of the technological possibilities of what some historians refer to as the Second Industrial Revolution – the arrival of new GPTs such as electricity, mass-produced automobiles, and petrochemicals that appeared in the late 19th and early 20th century.²⁰ The rapid urbanization that ensued from this new wave of innovation changed the character of the American economy. Small farming became increasingly unsustainable, and the typical American was more likely to work within an integrated corporation. The ideal of the yeoman small producer thus gave way to another vision of the common good: the consumer economy with the middle-class wage earner at its core.

The first decades of the 20th century were a time of massive economic disruption, as the latest GPTs were driving a Second Industrial Revolution focused on budding industries such as mass-market automobile manufacturing and petrochemicals. These new companies and industries were revolutionizing the entire American economy, producing enormous productivity gains. The benefits, however, were highly unevenly distributed, as large companies with deep reserves of capital reaped vast profits, while workers and smaller firms without these resources were overtaken. As these structural mutations in the American economy began to displace workers from family farms and small, low productivity firms, wealth and income inequality levels soared to levels that would remain unmatched until 2014.²¹ The burst of technological innovation also led to “irrational exuberance” among investors, generating a series of financial bubbles. By the late 1920s, American financial institutions found themselves overexposed to debt from loans to electric utilities – the technological giants of their day – and to commercial real estate for the skyscraper boom.²² With the stock market crash of 1929 and the drastic economic contraction that followed, workers from bankrupt small manufacturers and farms found themselves searching for jobs still uncreated because mass production technologies had yet to be fully dispersed throughout the economy. A few superstar firms were not enough to absorb the employment dislocations that accompanied the Great Depression.²³

Upon taking office in 1933, the Roosevelt administration faced dire challenges. The economy was in freefall, with an epidemic of bank collapses and mortgage defaults. As many as half of all home mortgages were in default, with a thousand a day entering foreclosure. To stop foreclosures and to shore up ailing banks, Congress established the Home Owner Loan Corporation (HOLC). HOLC bought risky loans off

bank balance sheets while permitting borrowers to extend their maturities, permitting homeowners to make smaller payments. In addition, the Fair Housing Administration (FHA) and the Federal National Mortgage Association (FNMA) designed a never-before-seen instrument, the federally-guaranteed thirty-year fixed mortgage, whose interest rate was capped at 5%. By pooling liabilities and creating a secondary market, the standardized thirty-year mortgage facilitated homeownership on a large scale. The FNMA carved out a space within finance for low-risk widespread ownership of housing assets, allowing wages to form the basis of household wealth-building. It also made mortgage financing a “boring,” low-margin business, shielding both borrowers and lenders from risk while also curbing speculation.²⁴ This government action dovetailed with the era’s banking system reforms such as Regulation Q, which granted the Federal Reserve authority to cap rates that banks could pay on consumer deposits. Similarly, the Glass-Steagall Act separated investment from retail banking. These acts segmented the banking system so that specific institutions would cater to certain segments of the market, concentrating wholesale finance in regulated entities rather than open markets and separating risky investments from the wholesale consumer financial market into specific entities. Over time, the instruments devised initially to deal with an acute crisis would gradually become routinized to stabilize the economic system, thereby producing a “new normal” that would gradually come to be seen as a “natural” state.²⁵

In addition to stabilizing the private housing market to facilitate middle-class wealth building, New Deal programs launched during the 1930s also helped close interregional productivity gaps. This included a novel form of mutual ownership for the production and distribution of that era’s most important productivity-enhancing GPT: electricity. Much as with today’s ICT industry, electrification

in the early twentieth century was a well-developed industrial sector, albeit geographically and economically concentrated. Early in its deployment, electricity was only available to large firms with the capital needed to install generators. The founding of electric utilities helped alleviate disparities by spreading the cost of electrical infrastructure across multiple customers. However, most of these efforts were concentrated in major urban areas. Just as today with ICT, electrical access in rural areas and small towns lagged behind.²⁶

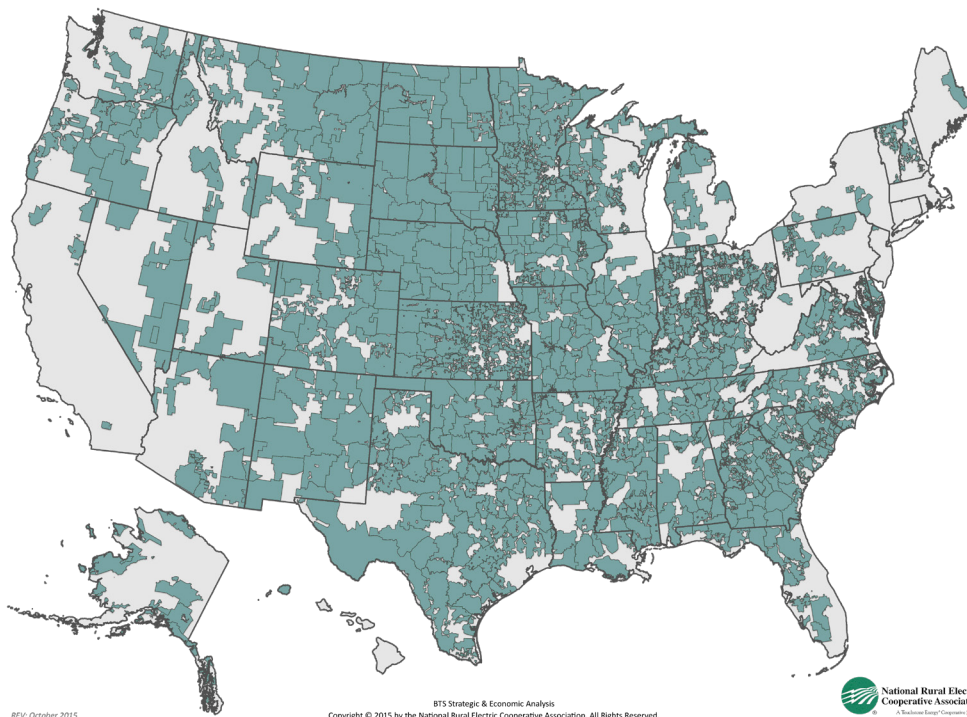
The New Deal's Rural Electrification Administration (REA) addressed this problem by making loans to rural "electric cooperatives" that would contract out the work of constructing lines and generators to private firms while retaining community ownership of capital assets. By providing the initial financing for community ownership of electrical production, the REA greatly expanded the pool of beneficiaries of the

successive productivity-enhancing technology. The REA's cooperatives effectively turned access to electricity into a public good. Even today, three-quarters of the United States' land area receives its electricity from mutually-owned cooperatives whose origins lie in the New Deal. The results of reducing inter-regional inequality were stunning: in 1933, only 3% of households in the central South had access to electricity, while by 1945, this number had grown to 75%. The efforts of the New Deal REA brought the national percentage of rural households with electricity from 13% in 1929 to 94% in 1944.²⁷ In addition to improving the lives of individual households, rural electrification accelerated American economic productivity in the postwar years.²⁸

The New Deal's electrical cooperative movement suggested a very different model of asset ownership was possible in America, demonstrating that government action could make the country more equal and socially democratic.

Figure 4: The REA's Legacy

America's Electric Cooperative Network



Source: Southern Minnesota Energy Cooperative <http://www.smenergy.coop/about-electric-cooperatives/>

In the end, however, political backlash against the New Deal's more radical policies prompted American liberals to adopt the "Keynesian Consensus," which involved limiting government intervention in the economy to correcting short term fluctuations in demand via countercyclical spending. The experience of WWII had taught policymakers that instead of addressing contentious issues of ownership and monopoly, the government could act as a mediator between the large corporation and labor. As historian Amy Offner has observed, "The Employment Act of 1946 signaled the triumph of a restrictive version of Keynesianism in the United States; the federal government took responsibility for sustaining economic growth with fiscal and monetary policy but divested itself of broader obligations to regulate private capital."²⁹ Likewise, the Taft-Hartley Labor-Management Relations Act of 1947 limited some of the more pro-union aspects of the 1935 National Labor Relations Act, curtailing the countervailing political power of labor unions. Post-war economic policymakers preserved New Deal innovations in ownership structures, like REA cooperatives, but chose not to deepen or expand them. Consequently, the government constrained its own ability to intervene in legal claims to the ownership of productive assets and their associated cash flows.³⁰ American economic citizenship henceforth would be marked by citizens' interests as consumers rather than workers.³¹

The establishment of employer-employee agreements during World War II, embodied by the so-called 1950 "Treaty of Detroit" between General Motors and the United Auto Workers union, formed the template for how economic governance would work after the war. As a result, real wages for workers over the next thirty years grew more or less in proportion to productivity gains in the economy as a whole. This promised wealth building through full employment, coupled with inflation-indexed wages, guaranteed pensions, and

health care.³² Together with high top-marginal tax rates, this model of economic governance led to a gradual decline in wealth and income inequality. Corporations and their shareholders maintained private ownership of productive economic assets. Meanwhile, steadily-rising home prices and wages as well as an employer- and government-provided benefits gradually remolded the American working class into a broadly wealth-owning middle class relatively insulated from financial risk. It is no wonder then that many Americans look back to the postwar years with a certain nostalgia. This "corporatist" model would remain dominant until the 1970s when the twin forces of consumer-price inflation and stagnant economic growth would upend the political bargain underpinning this arrangement with the introduction of policies in line with neoliberal doctrine.³³

Wealth and Technical Change in the Neoliberal Political Economy

Historian Judith Stein has referred to the 1970s as the "pivotal decade" because of the breakdown in post-war corporatist industrial relations, which ushered in a new model of economic governance.³⁴ The economy transformed: once driven by swelling worker wages and benefits (and the consumption they funded), it became a corporate-profit economy, fueled by investment and growing household debt. By the end of the decade, a "financialized" model of capitalism was surfacing, supported by neoliberal social policy mechanisms. Financialization shifted the most dynamic loci of economic activity and profit from large manufacturing conglomerates to corporate behemoths able to mobilize financial assets and deliver non-tangible services. Under this new structure, post-war economic arrangements between workers and employers collapsed. Management's prioritization of financial claims, embodied in corporate governance prioritizing "shareholder value," meant that hitherto relatively

cozy concordances between management and labor came to an end. Previously, postwar political and corporate leaders had often viewed a high-wage, high-benefit, heavily-unionized economy as a means of achieving social peace and sustainable growth. But from the 1970s on, business leaders and their political allies increasingly saw workers employed on such terms as a financial liability limiting their ability to invest and innovate effectively.³⁵ Likewise, a bipartisan consensus developed, contending that federal regulations designed to stabilize markets in fields like transportation and logistics were inhibiting innovation. It was, in fact, the Carter rather than the Reagan administration that began the great late 20th-century mania for deregulation.³⁶ If the “search for stability” was the primary aim of the corporatist era, as historian Charlie Maier has observed, the search for “flexibility” would become a watchword of the new neoliberal era.³⁷

This structural overhaul of the economy was associated with the simultaneous decline of the productivity-enhancing benefits of the Second Industrial Revolution’s technological inventions and the parallel rise of the next wave of GPTs, the so-called information, and communications technologies. In 1971 Intel introduced the computer microprocessor. A year earlier, the Advanced Research Projects Agency Network (ARPANET), the predecessor to the modern Internet, had reached across the American continent. The Internet would traverse the Atlantic in 1973 – the same year as Motorola debuted the first handheld mobile phone. 1978 saw the launch of the Global Positioning System (GPS) satellite network, enabling remote geolocation. Such “high tech” inventions (a term also coined in the 1970s) would, in due course, form the technological foundation of the globally-integrated financial system, the globalized supply chains, and the knowledge worker economy that are the emblems of our contemporary post-industrial economic order.³⁸

At the time, however, the economic conditions of the era were anything but settled. The pressing economic policy conundrum of the time was so-called stagflation – a combination of slow growth and high consumer-price inflation that Keynesian economic orthodoxy had deemed impossible. In the 1950s, unemployment averaged 4.5% and consumer-price inflation 2.2%; in the 1960s, they averaged 4.7% and 2.3%, respectively. In the 1970s, however, both those numbers accelerated in tandem, such that during the Ford and Carter administrations (1974-80), these numbers averaged 7.0% and 9.4%, respectively, with consumer-price inflation peaking at 14.8% in March of 1980.

The reasons for this turbulence lie outside the scope of this paper, but several explanations have been offered to explain the “Great Inflation” of the late 1960s and 1970s. Most mainstream economists have focused on the failure of the Federal Reserve to check inflation through monetary policy, with some suggesting that the Federal Reserve faced political pressures to not counter rising inflationary pressures. Others have argued that the Fed’s failed to take account of expectations-based adjustments to inflation, expectations that were often institutionalized in the form of inflation-indexed cost-of-living adjustments baked into employment contracts. Yet others have argued that the trotting inflation which had been tolerated as a way to smooth over employer-worker competition over revenue sharing, tipped into full-blown persistent economic and political crisis in the context of an exogenous increase in oil prices.³⁹

Generally, policymakers of the time understood that, whatever the deeper cause of stagflation, the immediate problem lay in the unchecked rise in wages.⁴⁰ The Nixon administration’s attempts to control consumer-price inflation directly via wage and price controls failed, and the Carter administration’s efforts fared little better. It was only in 1979, under the

leadership of newly-appointed Chairman Paul Volcker, that the U.S. Federal Reserve committed itself wholeheartedly to taming consumer-price inflation, irrespective of consequences for employment. Under Volcker, the Federal Reserve Board raised the federal funds rate, which had averaged 11.2% in 1979, to a peak of 20% in June 1981, causing a dramatic shrinkage of the money supply and a vicious economic contraction – the so-called Volcker Shock. “The standard of living of the average American has to decline,” Volcker reportedly told a horrified Senate panel in 1979; “I don’t think you can escape that.”⁴¹ Many marginal businesses failed, and the unemployment rate peaked at 10.8% in March 1982. The hardest-hit firms were heavy industries that had once provided high paying, unionized jobs for working Americans. Concurrently, the recently-elected Reagan administration, in cahoots with business leaders, took the opportunity to make a frontal assault on the unions that had been a staple of the corporatist social contract. The jobs that replaced the postwar economy’s secure industrial employment had worse pay, higher turnover, and an increasingly female workforce lacking the organizing infrastructure or political power of the old industrial unions. To put it simply: the Volcker Shock originated the conditions for a restructuring of industrial relations that ended inflation by flat-lining American workers’ wages.⁴² However, it also laid the ground for a new kind of price growth in intangibles goods and services like education and healthcare and also in financial assets.⁴³

While Volcker was occupied with cutting credit from the economy in order to force down real wages, other parts of the market and government were innovating ways to restructure the provision of credit to middle-class households. These policy improvisations in financial markets form the cornerstone of what we refer to as “really existing neoliberalism.”⁴⁴ In popular parlance, American neoliberalism has become a kind of shorthand for a set of disparate intellectual traditions that called

for the deregulation of industry and embraced precariousness of employment as a strategy to instill labor discipline and wage restraint.⁴⁵ This definition is not exactly an inaccurate description of the era’s trends. However, it ascribes too much intentionality to what was, in fact, a series of extemporaneous policy innovations attempting to adapt the welfare state to work through financialization by turning households into risk bearers while protecting large private financial institutions so that they could fuel capital asset growth. “Really existing neoliberalism” was less a wholesale attack on the New Deal state promoted by right-wing ideologues than a repurposing of many of the government’s existing institutions and methods to ensure private risk-taking in the name of economic growth. Whereas the New Deal’s welfare institutions were designed to shield households from financial market risks, neoliberal welfare institutions encourage them to seek financial market rewards. However, even as the federal government worked to de-risk corporate and financial profits, it did little to claw back direct returns to the state, or its constituents, for bearing this risk.⁴⁶

Personal Wealth Building under Neoliberalism

The politics of “really existing neoliberalism” of the 1980s and 1990s was embodied in the efforts of both Democratic and Republican politicians to “democratize” access to financialized assets. The stated goal was to foster an “ownership society” in which households would grow their private wealth by investing in residential real estate and personal retirement investment accounts. Under the old corporatist model, workers were to build wealth by saving a percentage of their steadily-growing wages. In the neoliberal era, growing one’s personal wealth depended increasingly on asset ownership.⁴⁷ The Tax Reform Act of 1986 consummated homeownership as the primary wealth-building

mechanism for middle-class Americans. The Act eliminated the tax deductibility of all interest except on mortgages while also eliminating tax incentives for the construction of rental housing.⁴⁸ This sent a clear signal that homeownership ought to be the primary wealth-building focus of the American middle class and that homeowners needed to treat their homes not as housing but as investments.

By the late 1990s, bipartisan legislation dismantled New Deal-era financial regulations such as Glass-Steagall and Regulation Q, which had made homeownership a safe, if boring form of investment. Simultaneously, the US federal regulators largely ignored Wall Street's 'exciting' newfangled products such as so-called NINJA ('No Income, No Job') loans and "collateralized debt obligations" which bundled and tranced home loans so as to market them as bonds with allegedly-stable risk profiles.⁴⁹ The net result was a vast run-up in housing prices, which was good for people who had gotten into the housing market early, but which made homeownership a goal which could increasingly only be accomplished by taking on extremely large levels of personal debt, with all the personal risk that leverage entails.

The social policies of this era also transformed the other major store of American household wealth: retirement savings. Like the reshaping of housing into a speculative financial asset, the financialization of retirement and its associated instruments – the 401(k) – was not an intentional ideological program but rather an *ad hoc* response to the economic shifts of the 1970s. Following the aforementioned Treaty of Detroit, many American workers became eligible for employee-funded *defined benefit* pension plans. Such programs made sense for big postwar corporations as they stabilized their workforces and bought industrial peace. However, pension programs also created huge liabilities for the corporations offering them. Spiraling costs of living-adjusted expenses became ruinous for corporations trying to compete

under the pernicious sign of stagflation. Moreover, the rise of the service economy, with its smaller-than-average firm size and mobile workforce, also made it challenging for firms to maintain defined-benefit corporate pension funds.⁵⁰

Into this context, stepped a compensation consultant named Ted Benna. In 1989, while working for a bank, Benna discovered section 401(k), a heretofore obscure provision in the 1978 tax code. The legislators who drafted Section 401(k) originally envisioned that provision not as a retirement savings vehicle but rather as a mechanism allowing wage-earners to defer some of their pay directly into stock market investments in lieu of cash bonuses, thus allowing them to avoid income taxes before investment. This was attractive to the relatively small category of (typically high wage) employees with both the surplus income and the inclination to invest directly in the stock market. Benna realized that the company could match contributions to the plan to incentivize lower-paid employees to choose a tax deferral. Whereas employees with defined-benefit plans had been (often unknowingly) indirect equity investors via the investment strategies of their pension funds, owning a 401(k) account permitted employees to directly control their own stock market investments.

In the years since Benna's idea, the 401(k) morphed from a way to offset bonus payments for executives into something its authors never intended it to be: the main instrument for American retirement savings. For newer companies, particularly in the rapidly proliferating services sector, offering employees a 401(k) plan (sometimes with a modest employer "matching contribution"), rather than a defined-benefit pension plan, enabled them to control their costs directly. This insulated firms from inflationary risk while also giving them a competitive edge against the legacy firms still saddled with funding defined-benefit plans. Employees benefited as well: personally-controlled retirement accounts not only

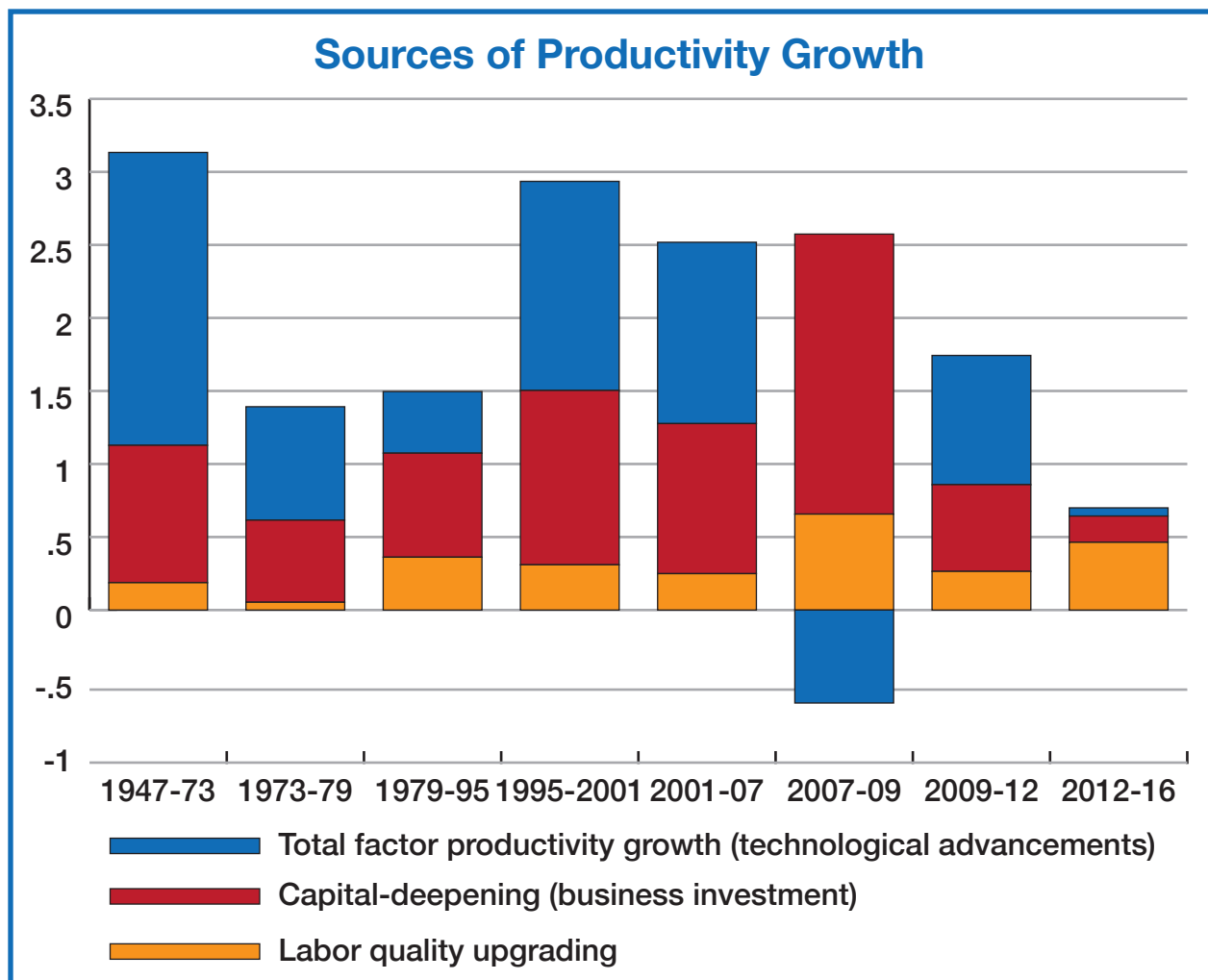
protected workers from the risk that they would lose their pension if their employer went bankrupt but also were portable so that if employees switched jobs, they could take their pension savings with them. This was especially appealing because the nature of work itself was redesigned, as the norm of lifetime employment with a single company was supplanted by a system where workers switched jobs more and more frequently, especially in the more dynamic services sector.⁵¹ For both employers and employees, in other words, replacing defined benefit pension plans with 401(k) enabled flexibility. At the same time, the transition from wage-led to finance-led private savings reconstructed the American household as a risk-taker, whether they liked it or not. Today

virtually no private corporations offer defined benefit pension plans to their employees.⁵² Like housing, retirement savings in the age of neoliberalism were transformed from an obligation to the citizen into a subsidy designed to encourage individual risk-taking and flexibility.

Public Wealth Building under Neoliberalism

Contrary to Silicon Valley’s mythology that its tradition of innovation emerged whole from the garages of Palo Alto, it was in fact government investment that funded the opening phases of the ICT revolution. The best-known example of the government’s role in seeding the ICT revolution concerns the development of microprocessors. The Defense

Figure 5: Sources of Productivity Growth

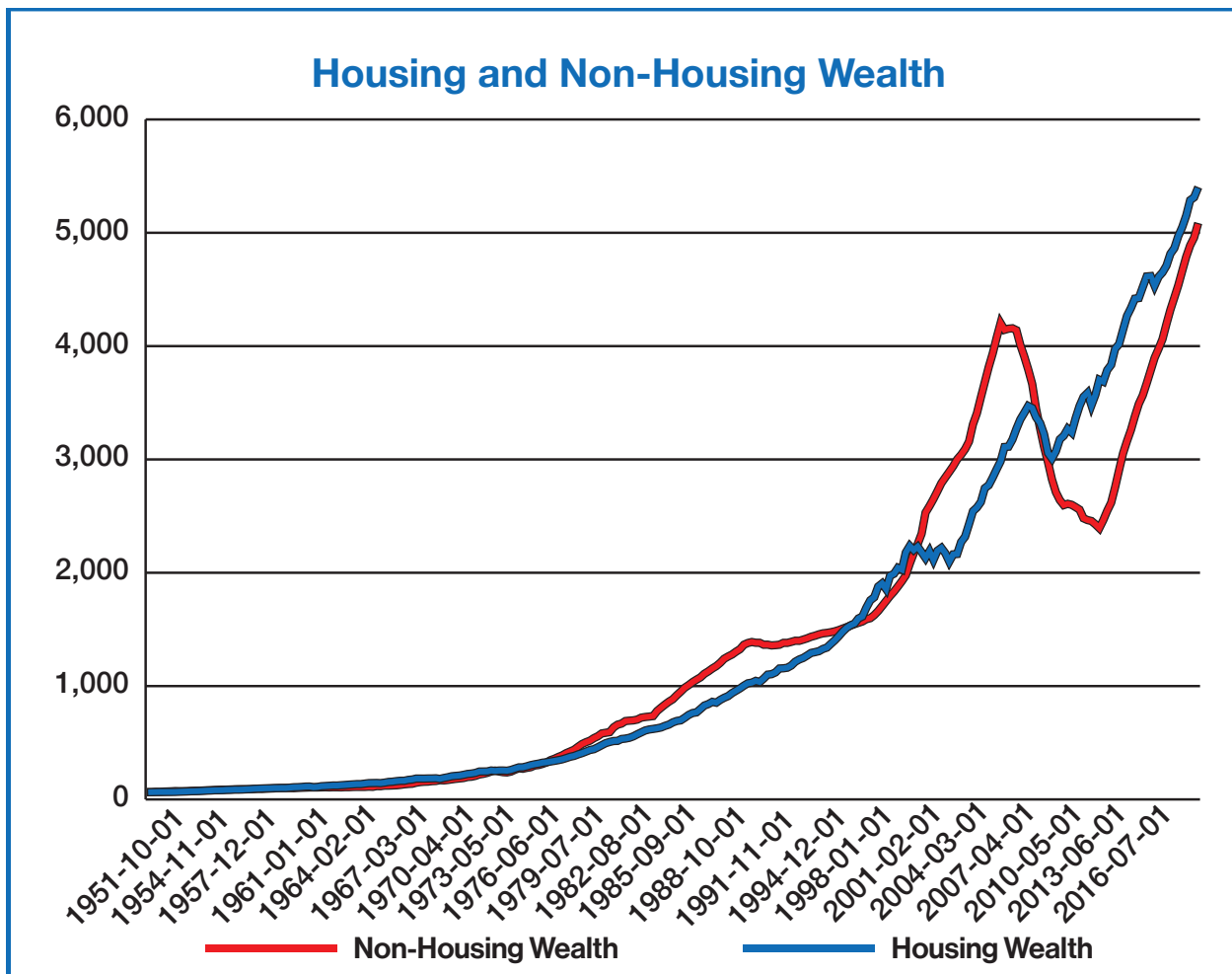


Advanced Research Project Agency's (DARPA) funded the basic research underpinning Intel's microprocessor. Moreover, government demand for computing power for missiles and other advanced weapons systems generated the initial market for the technology: it was not until 1982 that the commercial market would overtake the government as the primary purchaser of microchips.⁵³

The Reagan administration's 1982 Small Business Innovation Research (SBIR) Program, although less well-known than DARPA, was arguably even more important for encouraging technological development. The SBIR required research-intensive government agencies to set

aside a portion of their budgets to support small businesses. It also birthed an organization that both solicited projects and actively supported small businesses in preparing bids for government research contracts and commercialization efforts. Since 1995, the SBIR has spent more money on early-stage private research in small companies than the entire venture capital industry combined. The SBIR encouraged early-stage commercial research by small firms, pushing its members to collaborate with venture capital firms to commercialize these opportunities in later stages of the innovation process. However, unlike venture capital, which takes an equity stake in firms to generate returns for its funders, SBIR does not

Figure 6: Housing and Non-Housing Wealth



Source: Financial Statistics of the United States, Author's calculation based on William R. Emmons, "Is Homeownership Bad for Wealth Accumulation?" St. Louis Federal Reserve Housing Market Perspectives November 24, 2017.

hold equity in successful projects nor in the patents and data that firms generate.⁵⁴

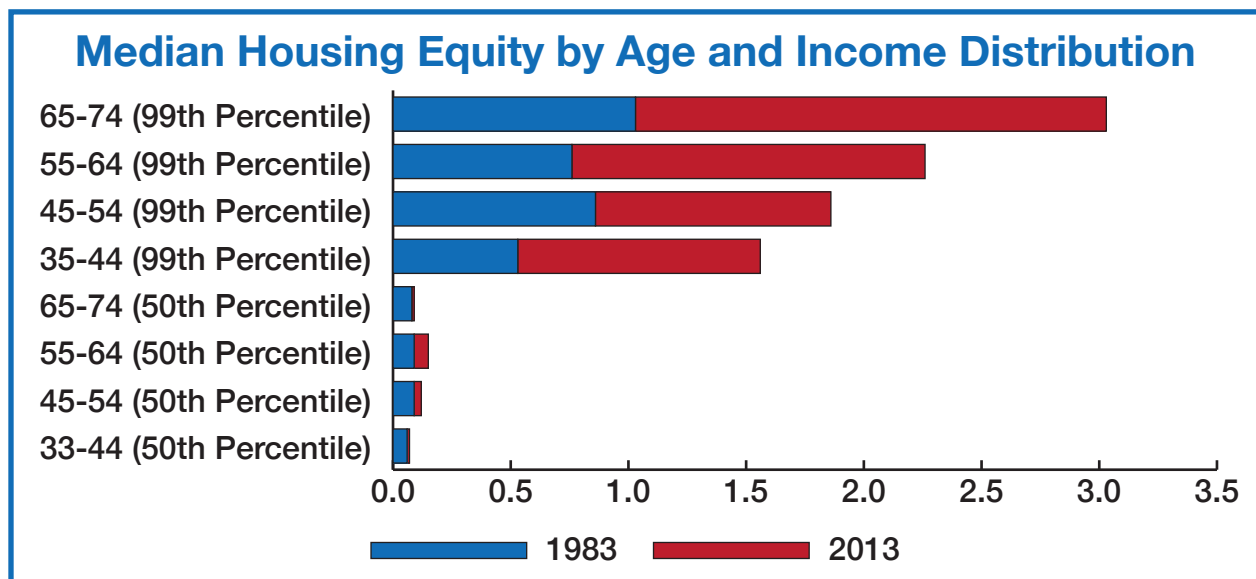
This quiet public wealth policy helped to spawn the first technology boom of the 1990s. The productivity benefits of the ICT boom were initially quite significant. In the mid-1990s, investment-spurred demand tightened the labor market, helping real wages to grow at a pace unseen since the 1970s. For many breathless pundits of that decade, “the New Economy” heralded the discovery of broad, sunlit uplands of endless high economic growth and universal prosperity. However, productivity growth began to decline in the early 2000s following the dot-com bubble, a process that worsened in the wake of the 2008 financial crisis. At the same time, the gap between productivity and wages appreciation expanded at a hitherto unprecedented rate.⁵⁵ To make matters worse, what productivity growth that has occurred has not come from innovation or business investment, but rather from what economists refer to as “labor quality upgrading,” that is, personal investments by workers in their skills (figure 5).⁵⁶ Put plainly: even the meager productivity gains of recent years have come less from labor-saving

technology or investment in new lines of business than from education paid for by prospective knowledge workers in a higher education system experiencing spiraling price inflation.

The Limits of the Neoliberal Paradigm

The loss of economic dynamism since the early 2000s underscores the failure of the financialized economy to produce the sustained growth necessary to empower the American economy to reap the full productivity benefits of late-stage ICT technologies. Firms responding primarily to the short-term interests of shareholders have less incentive to use their capital to invest in frontier technologies that do not add immediately to their revenues. Instead, the incentive is to drive the stock price higher via dividend payments or repurchases. Stagnating wages likewise are hindering productivity growth by motivating firms to retain labor-intensive processes rather than to replace workers with machinery. While this might seem beneficial in that it preserves jobs, the jobs preserved under this low-investment environment tend to be low-skill, with low wages inadequate for personal wealth building, or really anything beyond mere

Figure 7: Wealth Disparities Grow Over a Lifetime



Source: Edward Glaeser & Joseph Gyourko, “The Economic Implications of Housing Supply,” Journal of Economic Perspectives 32:1 (2018): 3-30.

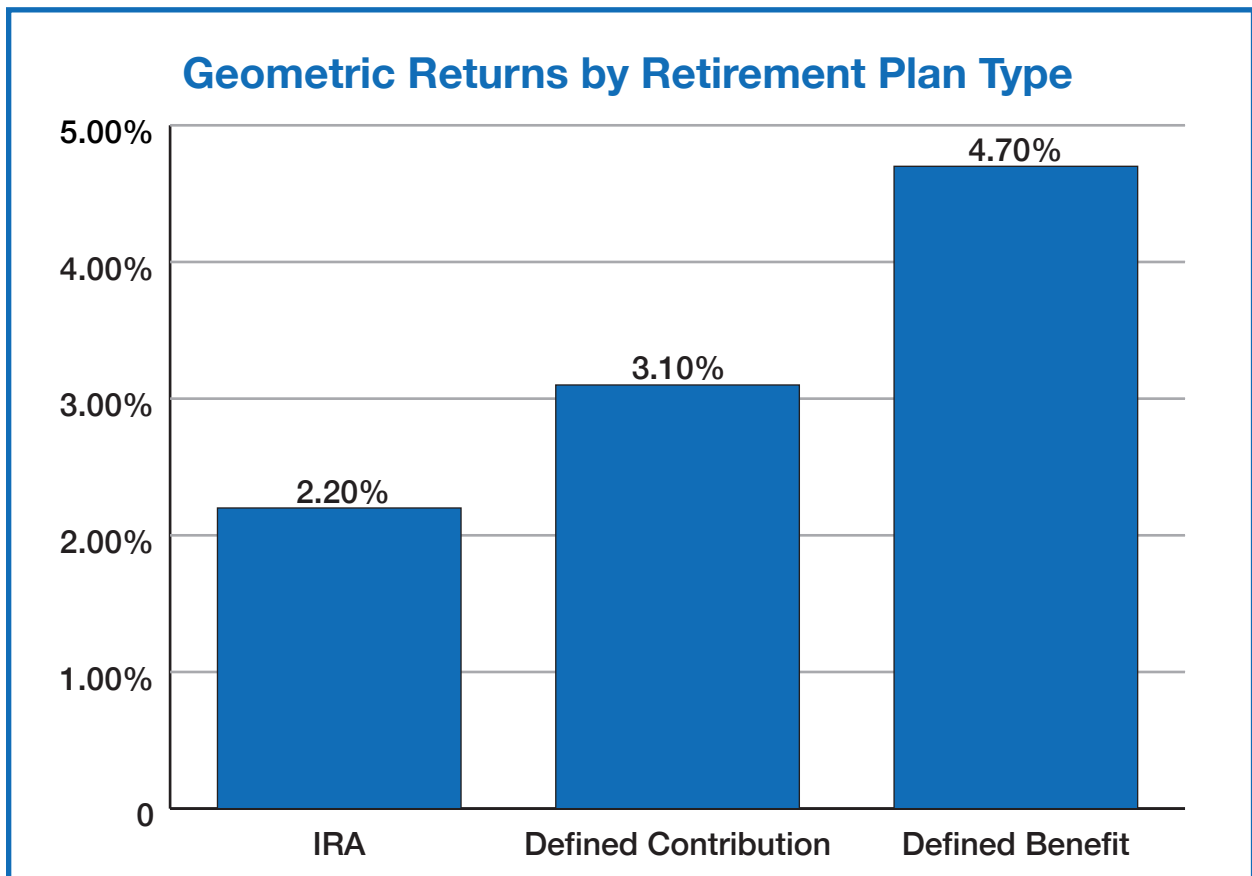
subsistence. Without a robust workforce ready to demand higher wages and consume better goods, the economy is stuck in a deflationary spiral of fewer and increasingly substandard jobs.⁵⁷

Moreover, treating one's house as the primary vehicle for personal wealth accumulation is no longer a viable strategy for most Americans. For those at the bottom of the income distribution, who have never been able to afford to buy a house, the housing-based ownership model has done nothing to build wealth.⁵⁸ At the same time, middle-class homeowners have offset stagnating real wages by taking out loans against their home equity. This has helped to maintain "keeping up with the Joneses" consumption standards, but at the cost of eroding the middle class's ability to build private wealth.⁵⁹ For younger workers in high-growth ICT sectors, who might conceivably have

been able to gain personal wealth from entering the housing market, home price appreciation in places where these industries are concentrated (like the Bay Area, New York, Boston, and West Los Angeles) have effectively locked younger workers out of the housing market. Their wages have not caught up to the rising price of financial assets.

The only winners in the housing market have been older members of the upper-middle class, whose wages more or less kept up with inflation, and who often purchased second "investment" homes, which, in the context of continuous housing price inflation, were often perceived as "risk-free" assets. But even for this group, the value of housing as a wealth-building mechanism has become increasingly dubious, as housing prices have not kept up with the growth

Figure 8: Disparate Returns on Different Forms of Retirement Plans



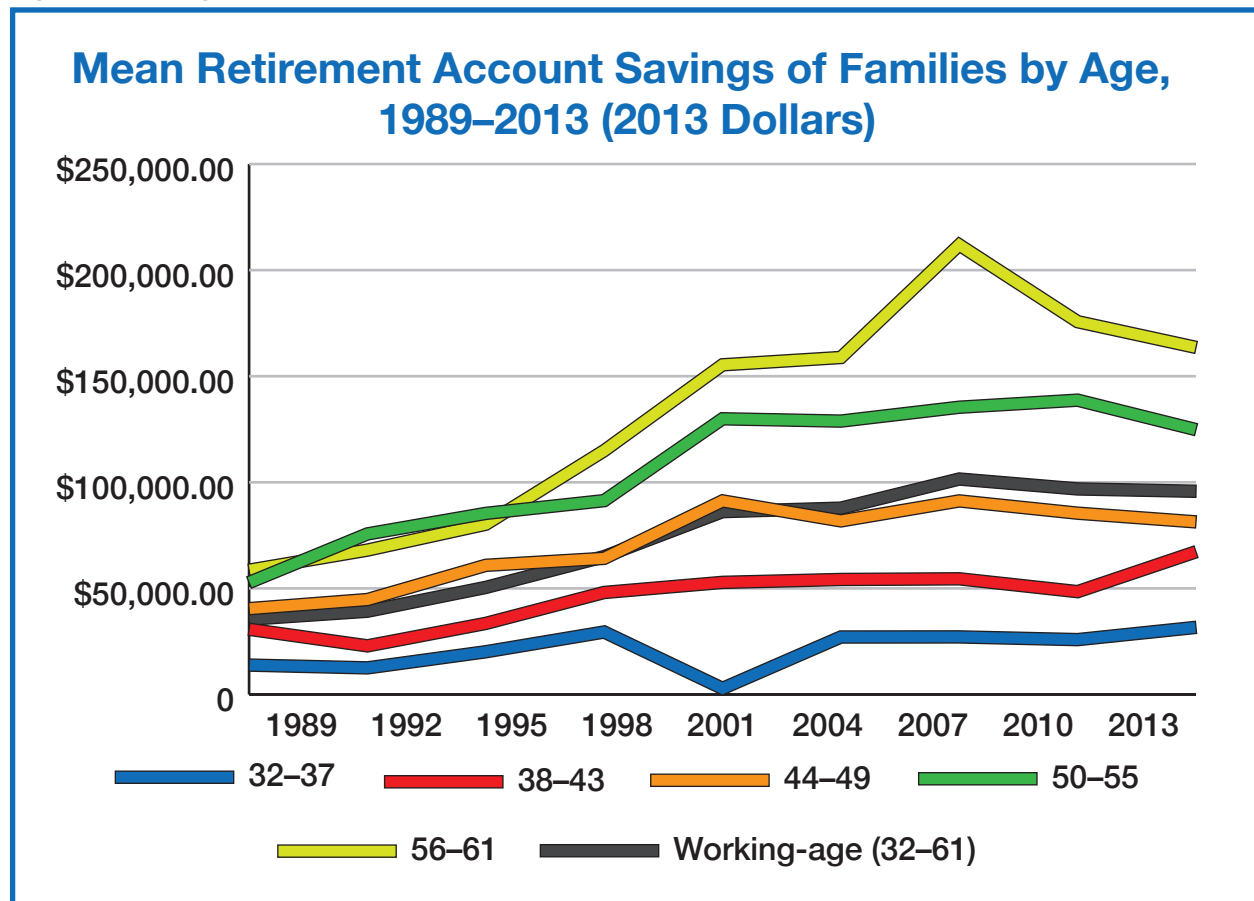
Source: Center for Retirement Research at Boston College

of other assets (Figure 6). With these dynamics in mind, it is no accident that the demographic most likely to accumulate wealth by housing is disproportionately wealthy and of mature age (Figure 7).⁶⁰ The net result is that expanding homeownership is no longer an effective approach for workers to build their personal wealth. Nonetheless, the idea of homeownership as the surest path to the middle class and to economic inclusion remains a bipartisan consensus, still widely advertised on the websites of think tanks as ideologically varied as the American Enterprise Institute or the Urban Institute.⁶¹

Similar malign dynamics are present in the defined contribution model that is now the dominant approach to American retirement savings: a system that seemed appropriate when first proposed in the 1980s is no longer fit for

purpose.⁶² On the upside, 401(k)s have allowed retirement savings to become portable from job to job and have made it possible for savers to earn returns from a growing and diversified stock market, rather than relying on the fortunes of a single firm. However, now that they have evolved into primary retirement savings vehicles, 401(k)s have several inadequacies. First, most individual American 401(k) savers do not, in fact, earn the same rates of return on their retirement savings that large institutional investors or the seriously wealthy enjoy. The investment vehicles available to 401(k) investors lack the leverage available to institutional investors such as pension funds and high-net-worth individuals (Figure 8). Thus, returns to savings in 401(k) plans lag behind those in institutional cash pools like large pension funds. Second, unlike beneficiaries of defined benefit

Figure 9: Declining Retirement Funds



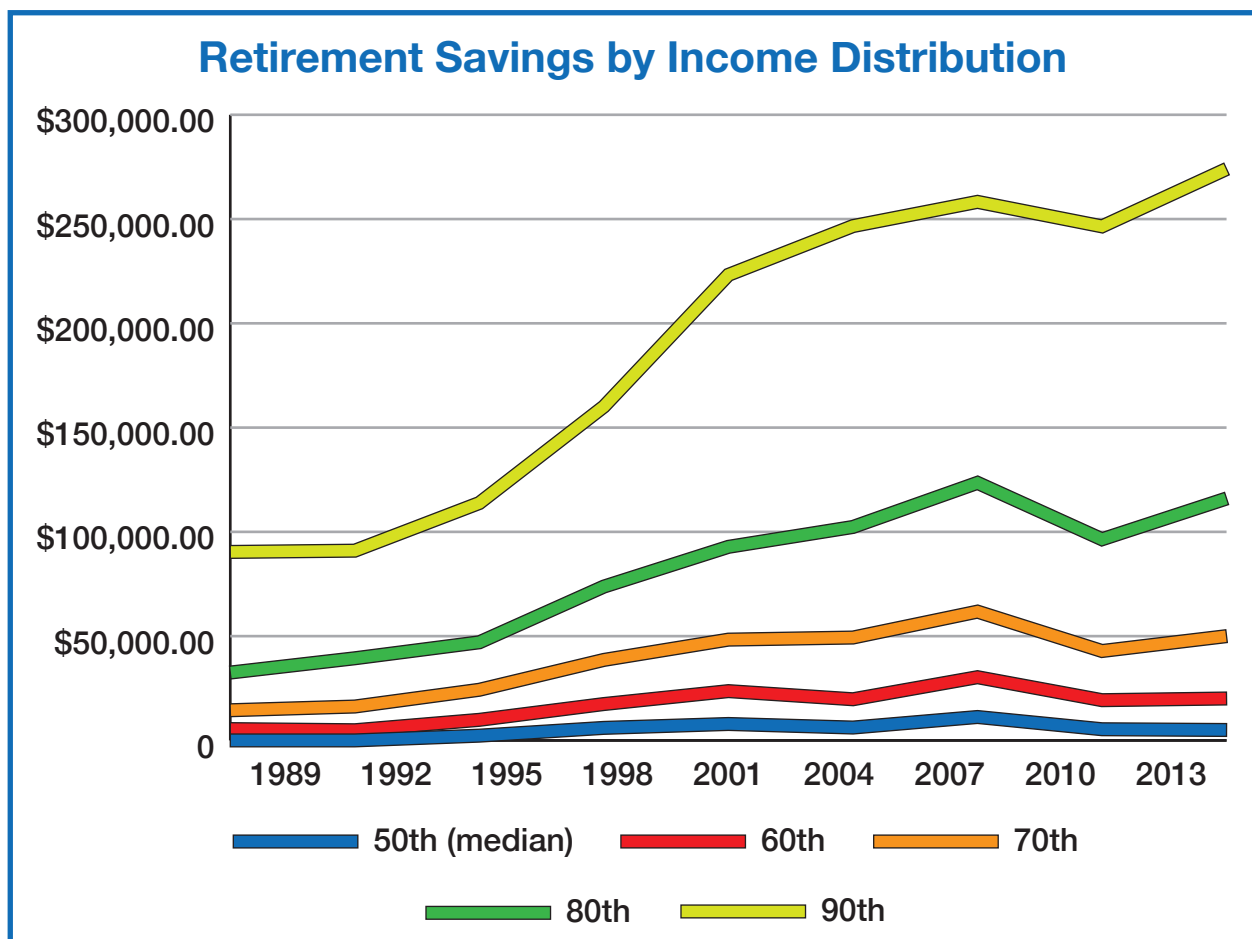
Source: EPI analysis of Survey of Consumer Finance data, 2013

plans, 401(k) savers face significant market timing risk, especially with respect to withdrawals: woe betides those who thought they had saved just enough to retire around 2009, for example (Figure 9). This is not the case for pension funds, which can invest for extremely long horizons and annuitize returns to beneficiaries independent of short-term market conditions. Third, wage stagnation has made it onerous for working families to save out of their earnings (Figure 10). In the end, the 401(k) is not a retirement program, but merely a tax shelter for savers; for those whose stagnating incomes are insufficient to generate significant savings, the tax shelter is worthless. Fourth, not all employers offer 401(k) plans, much less matching programs. Even those who do contribute, add far less to their employees'

retirement savings than did employers during the heyday of corporate defined-benefit plans.⁶³ The bottom line is that the vast majority of American workers whose careers have unfolded during the era of neoliberal governance face a far more financially precarious retirement than did workers of the previous generation who enjoyed defined-benefit systems.

The 401(k) was not designed to offer secure retirement for the vast majority of Americans. A response to the rapid disintegration of the corporatist consensus, it was, through a series of improvisations, repurposed as a retirement savings system for an era of economic governance that emphasized the high profitability of the firm and the transitory nature of employment. It accomplished its goal of creating a mobile

Figure 10: Inequality in Retirement Savings



Source: EPI analysis of Survey of Consumer Finance data, 2013

workforce for the new financialized firm, but it did not consider the long-term consequences and operations of financial markets. As such, it is a microcosm both of neo-liberal social policy and of its inadequacies.

The financialized American economy and the accompanying neoliberal social model emerged out of the 1970s initially as an ad hoc means to address then-burning problems of stagflation and underinvestment. These sea changes would help to unleash the ICT revolution and significant economic growth in the 1980s and 1990s, albeit at the cost of wage stagnation and growing precarity for workers. In the years since, it has crystallized into a policy consensus that limits creative responses to the economy as it exists today. Ten years on from the Global Financial Crisis, we face dramatically different challenges that the current institutions for governing capitalism cannot address, including a baleful combination of stagnant economic growth, flat wages, asset price inflation, and spiraling inequality. Even as unemployment has fallen to historic lows, younger workers, in particular, feel intense insecurity, seeing few realistic ways to amass personal wealth. Moreover, vast inequality limits investment in labor-saving (and thus productivity-enhancing) technologies. Investors and entrepreneurs have considered it more profitable to develop toys and services for the rich.⁶⁴ In short, to accelerate the deployment of the next generation of wealth-generating future technologies and to make sure that the fruits of these technologies are dispersed widely, we need to imagine creative new institutions of both personal and public wealth-building.

A New Deal for Wealth

The 2008 Global Financial Crisis and the Great Recession that followed shattered the neoliberal consensus that unfettered financial markets are benign and efficient and that innovation delivers broadly-shared prosperity.

As detailed in the introduction, the last decade has witnessed a dangerous combination of stagnant economic growth and growing inequality, a condition we referred to as “stag-quality.” If we are to make the most of the opportunities for prosperity presented by the forthcoming generation of GPTs, we must think critically and intentionally about how divergent wealth outcomes derive from the ownership structure of productive assets – specifically, what Katharina Pistor has called “the legal coding” that licenses property ownership.⁶⁵ Just as policymakers reimagined the governing institutions of American capitalism in the 1860s, 1930s, and 40s, and 1970s and 80s, we are called upon to do so once more.

Previous periods of profound technological development have provided opportunities to modify wealth building and distribution models. Late 19th-century land grant colleges during the era of agricultural expansion and industrialization, New Deal policies during the era of the Second Industrial Revolution, and the policy bargains of the 1970s that heralded the ICT revolution all served as harbingers for our own impending era of economic and social transformation. While it is impossible to predict precisely how looming technologies will develop, or that they will develop in the way we expect, we do know that the broad productivity gains of the ICT revolution have mostly evaporated since the 1990s. On the one hand, Carlotta Perez attributes this decline in productivity to the fact that we have not reformed our financial and ownership institutions to enable a shift from the initial “frenzy” of early-stage technology adoption to the more stable and equitable financial system needed for widescale deployment. Perez argues that we face a prolonged stall in economic dynamism due to a policy vacuum that fails to distribute gains across a broad range of stakeholders.⁶⁶ On the other hand, World Economic Forum founder Klaus Schwab has argued that we are on the cusp of a “fourth industrial revolution” in which technologies

such as gene editing, renewable energy, and artificial intelligence will restart growth.⁶⁷ However you periodize technical change, no future will emerge unless we incentivize its emergence. Without a reform of the structures of ownership, any new technological systems will be stillborn or restricted to very limited uses. And without institutions to rapidly distribute the gains from this deployment, we will repeat the same patterns we saw with the 1990s: the benefits will be sharp but fleeting.

Whatever one's theory of the future of technological change, we cannot disentangle the slowdown productivity growth from the ways in which gains created by productivity growth have overwhelmingly gone to owners rather than workers. This division of benefits is enabled by policy frameworks designed decades ago to address the now-irrelevant challenges and opportunities of the 1970s. As we have argued above, wealth inequality and workers' declining share of income has slowed productivity-enhancing innovation. Concerns over the slowing effect of innovation on the wellbeing of workers might seem paradoxical since popular literature on technology-driven unemployment hyperbolizes the "skills gap" and how robots will replace workers.⁶⁸ However, the matter is more complicated. The point should not be to try to slow or stop the implementation of labor-saving technology in order to defend what are often low-end, low-dignity jobs. Rather, we must guarantee that the material benefits of productivity gains are broadly shared and that these shifts advance collective rather than individual interests. These benefits should be both direct, from the sharing of revenues with broader constituencies, and indirect, based on incentivizing innovative companies to create better jobs rather than just displacing them. Nor is "skills upgrading" alone enough to forge a path to personal prosperity in an economy where incomes are stagnant, and asset ownership is drastically uneven in the first place.⁶⁹

Instead of fearing technical change, we need to accelerate innovation and prepare the ground for that possible new technology to create equitable outcomes through various forms of mutual ownership of the forthcoming technologies. Greater equality will generate more varied demand for as-yet-unknown types of services and goods, and thus new kinds of jobs that will absorb displaced workers in the long run.⁷⁰ In sum, a system that broadly distributes productivity gains makes technological displacement less traumatic personally and easier to navigate politically. It will also incentivize innovators to respond to the needs of multiple stakeholders as they are developing and investing in new technologies.

Building on our historical analysis, we believe that a future model of economic governance needs to reconceptualize asset ownership along two dimensions. The first is innovative institutions of *personal wealth-building* that will permit individual households to hold and grow their savings in safe investment instruments. The second is *public wealth-building* in which public institutions, as collective guarantors on behalf of diverse interest groups and classes, own shares of the productive wealth that government helped to create through public investment. In designing these institutions, we must ask a few key questions about what these new kinds of ownership should look like:

1. What sorts of assets are to be shared? For example, mineral wealth, personal data, percentages of IPOs, etc.
2. What are the mechanisms by which those assets are assumed for the public good? Should they be created as "public options" or purchased or traded from one's personal assets?
3. How should these assets be held? By the government – if so, under what authority, with what independence? By individuals – if so, with what investment latitude? Or through new cooperative ownership models?

4. What is the goal of these investments, and will they be delivered as individual incomes or as assets held in the name of the individual? i.e., funding of general or specific state operations, cash payouts to individuals, investment in specific public goods and infrastructure, or saving for specific goals such as housing or education?
5. Who (decides who) is included in the “we” that benefits from the sharing of public assets?

These questions guide our suggestions for the design of alternative institutions that can create direct mutual ownership of new wealth at its point of production. Rather than merely redistributing profits from the increasingly narrow set of winners that the current system is producing, we need to develop mechanisms that expand the group of winners that technology can create. Our approach should be experimental. We should explore multiple prospective institutions that can eventually become the seeds from which we breed a healthy ecosystem of asset ownership. In keeping with our broad conceptualization of public and personal asset building, we propose a variety of possible institutions that may serve as the basis for re-inventing an American political economy marked by mutually shared prosperity.

New Models of Public Wealth-Building

The most significant existing model for the mutual ownership of assets is the state-owned investment vehicle known as a Sovereign Wealth Funds (SWFs). Usually run by professional financial fiduciaries on behalf of governments, SWFs capture certain domestic revenue streams and reinvest them in a diverse global portfolio of real and financial assets. There are SWFs today in countries across the world, from Canada to South Korea and from New Zealand to Turkey, each controlling hundreds of billions (and in a few cases trillions) of dollars of assets.

As SWFs achieve a certain scale, states often use their revenues to fund two types of benefits. One is to fund direct payments to citizens in the form of universal basic income grants, or one-time capital grants to kickstart personal wealth building. Alternately, they can finance investments in public wealth, thereby improving social services and government performance.⁷¹

SWFs are usually found in economies with large, persistent trade surpluses. Profits from natural resource exports form the most common basis for building SWFs, as exemplified by places as otherwise different as Norway, Alaska, and Abu Dhabi. A high national savings rate can also serve as a source of revenues for SWFs: instead of allowing household consumption to rise in conjunction with the growing productivity, economies running perpetual trade surpluses can channel surplus production into mandatory contributions to the national SWF. The government of Singapore, for example, uses its residents’ mandatory high retirement savings to form the asset base of its SWFs.⁷² China, likewise, forces high savings rates and sterilizes its huge trade surplus by continuously growing its SWFs. A third approach is to fund the SWF by issuing sovereign debt to purchase shares in companies. Japan shows us that this model can work: as a result of its quantitative easing policies, the Bank of Japan owns 4.7% of the market capitalization of the Tokyo Stock Exchange’s blue-chip stocks and is a top shareholder in many major firms.⁷³

Because the United States is neither a major commodity exporter (beyond some local examples such as Texas and Alaska) nor a high savings economy, we need updated ideas for funding SWFs.⁷⁴ One alternative would be to tie proposals for wealth taxation on high net worth individuals to the formation of the SWF. Wealth-tax payers could transfer non-cash assets, like company stakes, into the SWF. Another promising model under discussion in California would impose a tax on targeted online advertising that could be offset

by firms who wished instead to offer a percentage of their equity into a new California Equity Fund.⁷⁵ While such a fund stops short of enabling citizens from directly “own the robots,” as some politicians and activists have called for, it would begin the process of legitimizing and acclimating the government to work in the realm of public assets.⁷⁶ This approach could be connected to revenue-generating wealth taxes by allowing extremely high-net-worth individuals to pay their tax liabilities with equity shares instead of cash.

Such a bold scheme, of course, poses many questions. Will new equity ownership arrangements apply only to fledgling companies, or also existing companies? Would such equity acquisitions only be limited to startups who have not yet gone public? If so, would this give an unfair advantage to firms in the Silicon Valley ecosystem over other branches of the economy? If not, how much equity should a large existing public firm be expected to deliver in order to attempt to enter digital marketplaces? Should the California Equity Fund hold equity that has voting rights or not? Under what circumstances should the Fund be able to sell its equity stakes, either to make capital gains or to hedge itself against overexposure? Answering these questions will involve making complex policy tradeoffs and is likely to require experimentation and rejiggering of rules over time as businesspeople and markets respond to the different incentives created by the scheme.

Beyond SWFs, rethinking how the government manages intellectual property rights offers another avenue for public wealth building. The large role that intellectual property plays in creating the value of new technology firms and the advantages that patent ownership confers on restricting recent entrants is undeniable. Patents are a crucial wealth-generating asset, one that will only grow in importance as IP continues to become more and more central to wealth generation. The outsized role public funding plays in basic scientific research provides a sound basis for the public to

claim a share of this wealth.⁷⁷ Governments should consider policies to own shares of patents on innovations created via publicly-funded research to capture and distribute their revenues. Further, governments should develop policies to make patents available to the public at large rather than only to corporations.

Finally, much like New Deal government-funded electrification cooperatives, an equitable economy will require investments in modernized infrastructure such as widely-available public broadband and alternative clean energy sources to combat climate change. For the United States, a service-oriented economy that issues a global “reserve currency” used internationally to fund world trade, the most effective public assets are its own balance sheet and low cost of borrowing. Therefore, the United States government should consider chartering a national investment bank (NIB) to issue government-guaranteed debt to securitize infrastructure development and research geared at promoting the mass installation of clean energy infrastructure. A NIB could do for the infrastructure of a nascent economy what the thirty-year mortgage did for homeownership, providing insurance for otherwise risky assets. A NIB would issue liabilities “discounted” at the US Federal Reserve for more liquid but less high yielding assets. For example, one dollar’s worth of NIB debt yielding one percent could, at the holder’s discretion, be traded at the Federal Reserve for fifty-cents worth of United States debt yielding half a percent. This use of the “discount” window follows the fundamental rule of central banking laid out by Walter Bagehot: “lend freely, against good collateral, at a penalty rate.” In doing so, the NIB can channel the demand for safe, US dollar-denominated collateral into activities that benefit a variety of stakeholders.⁷⁸

The most direct path to accomplish this, at least initially, is to focus on upgrading infrastructure. Since 1996, 72% of infrastructure investment has been funded via state or municipal

bonds. These bonds do not trade in deep, international markets since they lack the liquidity of United States debt. This is not only because states and municipalities can go bankrupt, but also because the bonds are not issued in large enough denominations to attract large institutional investors. One of the first things a NIB can do is to form a conduit between the instruments and global capital markets by securitizing them into highly liquid bonds. Upgrading infrastructure is critical to creating equitable access to productivity.⁷⁹

Unlike an SWF, a national income bank is an active instrument that directs capital to new projects rather than taking a stake in existing companies. Thus, it is a tool for the government to directly guide and create gains from early-stage innovation. Once projects funded by the NIB reach maturity, they can then become part of the SWF's portfolio. Moreover, unlike an SWF, the NIB would invest counter-cyclically. An SWF depends on the fortunes of a business cycle for the value of its assets. Because of this pro-cyclical bias, an SWF could quickly find itself struck by a financial crisis and recession blowing a hole in the government's budget when it needs its resources the most. However, the NIB can expand its lending when the private sector contracts while supplying high-grade collateral demanded by the global private sector in times of financial crisis. Thus, in addition to stimulating publicly necessary investment, the NIB could be issued a counter-cyclical mandate making it a powerful automatic stabilizer that smooths business cycles and puts the unemployed to work. Much like its predecessor, the New Deal's Reconstruction Finance Corporation, it can create financial vehicles that use the federal government's vast balance sheet to ensure public wealth.

New Models of Personal Wealth-Building: Universal Basic Capital

If new vehicles for public wealth-building that encourage the broad diffusion of frontier technologies form one half of an incipient new governance model for capitalism, then new personal wealth building institutions comprise the other half. As we have seen, American social policy in the postwar period has consistently prioritized support for consumption through access to credit and private instruments of wealth accumulation.⁸⁰ While such policies have offered flexibility to managers and workers alike, it has also left individuals responsible for their own economic security within a volatile economy that can overwhelm even the most financially-prudent middle-class households. Beyond insulating individuals from macro-economic risk, the new system should also protect them from the proverbial slings and arrows of outrageous fortune. Emblematic of the challenge is the fact that medical emergencies are now the primary cause of most personal bankruptcies.⁸¹ Without universal insurance programs covering health, disability, and retirement, anyone's household's wealth can be destroyed by a random personal calamity. A new personal wealth-accumulation model must, therefore, include an expansion of the welfare state through the public insurance of individual risks.

Even in states with extensive social insurance networks, there is a need for institutions to store and grow personal wealth earned from wages. Countries with extensive social welfare systems, such as Norway, have, in recent years, suffered from rising inequality and household indebtedness due to the financialization of housing. As we have seen, the housing-based wealth-building model no longer works and new savings instruments are needed. One option could be to provide every American with a high-yielding savings account at birth, managed directly by the Treasury or perhaps the Post Office.⁸² Such accounts could be supplemented with "baby bonds" that endow

every citizen with a pot of capital at birth that grows steadily throughout childhood and is made available to them incrementally, perhaps at ages 18 and 25, to serve as investments in education or housing.⁸³ A supplementary proposal by Lenore Paladino proposes creating additional citizen capital endowments that can be used to invest in community projects and small businesses listed on a government-operated and certified crowdfunding platform.⁸⁴ One advantage of this plan is that it allows public buy-in into small businesses' pass-through income, which constitutes a large share of the top one percent's ownership of corporate assets and is a major contributor to asset driven inequality.⁸⁵

One particularly popular proposal for social insurance is universal basic income (UBI). While wage subsidies might be a necessary component of social policy in a new economic system, we believe that proposals for UBI do not meet the criteria for a personal wealth-building policy. Even at a large scale that would be ruinously expensive to finance, UBI merely "raises the floor" to some minimal "basic" standard of individual consumption, while leaving the vast disparities in wealth and power that exist within the current economy unaddressed.⁸⁶ This may explain the popularity of the proposal among the current big winners in the economy.⁸⁷ In other words, UBI does little to promote greater equality or to help individuals build their own personal wealth. Instead, it merely provides a minimal sustainable standard of living. By contrast, individual savings vehicles would instead permit individuals across the income distribution to safely grow their savings as part of a system of mutual ownership.

An alternate model for personal wealth building must also address retirement savings. As discussed above, for most Americans, the 401(k) system does not offer an adequate

replacement for traditionally-defined benefit pension plans. By contrast, Teresa Ghilarducci and Hamilton James have proposed a plan that would require every American firm with more than five employees to contribute 3% of the employee's income into a guaranteed retirement account (GRA). Administered by either the Treasury or Federal Reserve as a pooled pension plan, GRAs would be individually owned accounts, returning individual contributions just like 401(k). However, because it would be administered as a large pool, it can make long-term, high-yielding investments that carry greater returns than individual 401(k) plans, thus offering middle-class families the same returns on their retirement savings as the wealthy enjoy on their investments. By taking on long-term investments and annuitized payments to individuals, GRAs would also insulate individuals from market-timing risks.⁸⁸ A postal banking system of guaranteed savings accounts, baby bonds, and guaranteed retirement accounts together provide the basis for a personal wealth-accumulation strategy that makes sense for the economy of the 21st century.

Toward a Mutualist Political Economy

Successful transitions between economic governance models always involve consequential revisions to the legal and institutional underpinnings of wealth and the ownership of the assets that produce it. Breaking from the past is always politically disruptive because the institutions optimized for a previous set of challenges retain their stakeholders and constituents. And yet, the same institutions that were useful for addressing past challenges can serve as springboards for our efforts to address the challenges and opportunities of the present. In each of the economic governance transitions we have

described in this paper, the biggest political challenge was to redefine the relations between individuals, businesses, and government.

Our proposed model of “mutualist” political economy restores the government’s proper role as a funder of innovation and an intermediary of its benefits, and promotes a vision for how the benefits of technological vision should be broadly shared and provides individuals with new systems of building personal wealth. At the center of this model is the principle of predistribution. We believe that predistribution means addressing wealth inequality not only with redistributive policies but also via the direct public ownership of wealth-generating assets. This does not mean eliminating the market but rather using the government to shape the contours of markets in order to create more equitable outcomes to begin with.

While some may observe that mutualism shares certain “collectivizing” characteristics with both socialism and the classical welfare state, it is also distinct from both. Socialism, as we understand the term, is centrally concerned with questions of production. Under a socialist system, workers not only control the distribution of surplus value but also the direction and means of production. By contrast, mutualism continues to find a role for management and entrepreneurship, but believes that the rewards for innovation and productivity growth should be distributed broadly. Mutualism also differs from the classical twentieth century welfare state. The guiding principle of the welfare state was the proposition that the state should above all serve as an insurer, collectivizing risks that individuals had little control over. In itself, however, the welfare state was not per se concerned with issues of distributive justice.⁸⁹ Under mutualism, ensuring the fair distribution and deployment of wealth becomes a central function of the state.⁹⁰

Our historical survey demonstrates that in response to new modes of production, successful economic transitions have required such a transformation through intervention in asset ownership. The task today is to imagine a model that not only reverses the deleterious effects of outdated policies and institutions but also reinvents the ownership of new technological and capital assets just as they are emerging. We believe that this “pre-distributive” approach to rebuilding the social contract complements the “redistributive” policies advocated to alleviate wealth and income inequality. Without regenerating underlying institutions of economic activity and production, redistributive arrangements will only perpetuate the causes of inequality. In turn, this holds back the kinds of progress that benefits all interest groups. Thus, in addition to redistributive taxes, moving past the limits of the neoliberal governance model means reinventing current practices in which society’s wealth is owned at the point of production. We must construct institutions to ensure that the assets that materialize from oncoming GPTs directly and immediately benefit a broad variety of economic interest groups, not just a small self-replicating group of capital owners. The good news is we have done it before, which means we can do it again.

Endnotes

- 1 On aggregate global wealth: <https://www.credit-suisse.com/about-us/en/reports-research/global-wealth-report.html>; on poverty statistics: <https://ourworldindata.org/extreme-poverty>. See also Branko Milanovic, *Global Inequality: A New Approach for the Age of Globalization* (Harvard University Press, 2016).
- 2 As McKinsey and Company put it in 1994, "US companies place the highest importance on increasing shareholder value. This practice counters company policies in Europe and Japan that seek to maximize benefits for customers, suppliers, the government and debt providers. However, a closer study of shareholder value as a goal would yield the fact that any increase in value is eventually distributed to all stakeholders. Thus, the productivity gains defined from change in market value added leads to better products, increased employment and higher revenues paid to the government." Thomas E. Copeland, "Why value value?" *The McKinsey Quarterly* 4 (1994): 97-110.
- 3 In their comparative study of household wealth in the United States, Britain and Brazil, Jeffrey M. Chwieroth and Andrew Walter argue that the establishment of a middle class dependent on asset appreciation and exposure to the financial system is a global phenomenon and that in these three cases, the financialization of owner-occupied housing was essential in the creation of these countries' middle class. See Jeffrey M. Chwieroth and Andrew Walter, *The Wealth Effect: How the Great Expectations of the Middle Class Have Changed the Politics of Banking Crises* (Cambridge University Press, 2019). However, in many European economies – especially Germany – owner-occupied housing does not play the same role in financialization. Instead, the replacement of wages with household exposure to financial assets has come through pools of savings invested through large institutions. This is consistent with Germany's policy to be a large-scale exporter and to protect yields on savers at all costs. These wealth accumulation strategies have contributed to the Euro crisis and represent a specifically European model of neoliberalism. See Daniel Mertens, "Putting 'Merchants of Debt' in Their Place: The Political Economy of Retail Banking and Credit-Based Financialisation in Germany," *New Political Economy* 22:1 (2017): 12–30 and Rawi Abdelal, *Capital Rules: The Construction of Global Finance* (Harvard University Press, 2007). For this reason, we restrict this paper only to the American experience while acknowledging that the United States is both a central actor in the global financial system and a particular, extreme variant of an increasingly global phenomenon.
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- 7 David Harrison, "Historic Asset Boom Passes by Half of Families," *Wall Street Journal*, 30 August 2019 <https://www.wsj.com/articles/historic-asset-boom-passes-by-half-of-families-11567157400> [accessed 31 August 2019]
- 8 Micheal Batte et. al. "The Distributed Financial Accounts of the United States" "Introducing the Distributional Financial Accounts of the United States," *Finance and Economics Discussion Series 2019-017*. Washington: Board of Governors of the Federal Reserve System: (March 2019) <https://www.federalreserve.gov/econres/feds/files/2019017pap.pdf> [accessed 17 July 2019].
- 9 See for example Gregory Mankiw, "Defending the One Percent," *Journal of Economic Perspectives* 27:3 (2013) 27: 21–34.
- 10 Ben S. Bernanke, "The Great Moderation," in Evan F. Koenig et al., eds., *The Taylor Rule and the Transformation of Monetary Policy* (Hoover Institution Press, 2004).
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- 17 Trina R. Williams, "Asset-building Policy as a Response to Wealth Inequality: Drawing Implications from the Homestead Act" *Center for Social Development Working Paper no. 03-04* (2003).
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disintegration of liberal internationalism under U.N. auspices.

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57 Protecting low paying jobs ultimately subsidizes inefficient businesses. One study has found that raising wages among San Francisco restaurant staff led to the closure mainly of restaurants with poor consumer reviews while leaving those with high reviews untouched, independent of the price-levels of the restaurants. See J.W. Mason, "What Recovery: The Case for Expansionary Policy at the Fed," Roosevelt Institute Papers, 25 July 2017; Dara Lee Luca and Michael Luca, "Survival of the Fittest: The Impact of the Minimum Wage on Firm Exit," SSRN Scholarly Paper (Social Science Research Network, 2018), <https://papers.ssrn.com/abstract=2951110>. Likewise, despite the aggregate fall in productivity, so-called "super star firms" at the top of sectors capture most profits while pushing down the labor share across the board. Firms that compete with these titans decrease wages at the margin rather than invest to improve their own productivity. Unsurprisingly, evidence shows that a contributing factor to this concentration is a slowed diffusion of innovation as first-movers hoard the knowledge and data needed to innovate. See David Autor et al., "The Fall of the Labor Share and the Rise of Superstar Firms," Working Paper, National Bureau of Economic Research, May 2017.

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Accumulation?" St. Louis Federal Reserve Housing Market Perspectives, 24 November 2017.

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75 The plan envisions having the new California Equity Fund be managed under the auspices of the existing California Public Employee's Retirement System (CalPERS) and that the revenues generated by the fund would be invested in public wealth such as higher education and infrastructure. One possible incentive to encourage private firms to give up their shares would be point of service taxes on data services which could be cancelled in exchange for equity.

76 In addition, this fund could also provide cheap loans to worker and/or community-owned digital platforms. These organizations are often more efficient and transparent in their use of customer data than private startups. However, because they are collectively owned by the workers and customers, private venture capital has no incentive to provide seed capital. Thus, despite often offering more efficient and profitable services, they struggle to compete with well-capitalized private competitors. The most obvious example applies to "sharing economies" such as ridesharing. Privately-owned ridesharing companies like Uber and Lyft have made a successful product that meets real consumer demand. However, they use their large stock of venture financing to duopolize markets, run their businesses at below cost despite paying minimal wages and offering no benefits, effectively blocking new entrants who might offer a more humane model. Cooperatively owned competitors can provide the same services but without the same need for high profit margins and an exploited workforce. Yet, without the venture capital funding available to private entities, they cannot hope to break the hold of their large corporate competitors. See Trebor Schultz, "Platform Cooperatism" *Rosa Luxemburg Stiftung New York*, January 2016.

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The Mutualist Economy: A New Deal for Ownership

EXECUTIVE SUMMARY

This essay proposes a new model of personal and public wealth building that can address the current crisis of inequality in the United States. We place contemporary American wealth inequality into its historical context by tracing how federal government policies have worked to support personal and public wealth building across three periods: the First Industrial Revolution of the Mid-19th Century, the Second Industrial Revolution of the Early 20th Century, and the Information and Communication Technology Revolution of the Late-20th Century. We then suggest a series of potential governmental policies that can help to ensure a more equitable wealth distribution in the future. Our proposed “mutualist” model of political economy would allow for the large-scale diffusion of productivity gains that may follow the installation of deployment of the next wave of general-purpose technologies. This new social contract will move beyond the welfare state’s focus on insurance toward a more radical notion of shared ownership of returns on capital via universal individual capital endowments and new public investment channels that control shares in firms and intellectual property.