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# "The Industrial Scrap Heap": Technological Unemployment, Obsolescence and Older Workers in the Early Twentieth Century US

Amanda Ciafone

*University of Illinois Urbana-Champaign, Urbana, United States,*
*aciafone@illinois.edu*

**Abstract:** Early 20th century workers, organisers, and social advocates argued that technological imposition by industry and its associated impact on older workers led to both the need and possibility to socialise old age economic security in the United States. This article explores how discourses of technological unemployment and human obsolescence influenced the push for old age pensions and Social Security. By analysing the intersection of technology, labour, and social movements and policy, the article sheds light on the ways in which technological unemployment has historically been used to justify economic and social reforms, and how these lessons can inform current debates on automation, AI and labour.

**Keywords:** history, automation, technology, old age, work and labour, social movements, economics, social policy

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## 1. Introduction

As readers of this journal – or, readers of practically any print or more likely digital publication – are aware, many in developed capitalist economies are concerned about a looming crisis of under-employment and job loss. Automation, generally, and artificial intelligence, specifically, appear poised to displace the work of large numbers of humans. Even as the full impact of AI on the future of work and workers cannot be known, scholars have long decried the degradation and precarity of many forms of employment in the new economy: the speed-up of digital labour, the short term temporality of gig work, the lack of regulation and accountability of employers via platform work, the theft of wages from workers and the expansion of work into unpaid hours, deskilling and the loss of worker control to digital surveillance, gendered and racialised stratification and exploitation, intensified exposure to the speculation and instruments of financial capitalism, and on (see, recently Pötzsch & Schamberger 2022, Demir 2024, Minotakis & Faras 2024, Liu 2025, Santos 2025).

This article examines the power of discourses of technological unemployment and human obsolescence in the first decades of the twentieth century and its mobilisation in arguments for old age pensions and Social Security in the United States. These discourses were powerful in their prevalence, impact, and seeming acceptance across groups of workers, labour and social reformers, and even industrialists in advocating for and justifying corporate and state welfare practices. At a larger level, this article argues that as we analyse our contemporary moment, histories of technology and, more importantly, histories of capitalism, can provide perspectives and inform

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strategies for the present. Such historical work elucidates movements to resist technology, regulate technological imposition, direct technological development for social imperatives and sustainability, and demand the redistribution of the forms of economic and time wealth generated by industrial and technological change. Historical perspectives also remind us that current technologies have not innovated on their own and do not proceed in a deterministic direction, but rather have been developed and applied based on capitalists' drive for efficiency and profit. AI and automation's contemporary threat to jobs may feel existential, but history suggests that it is another stage in the long, ongoing conflict between capital and workers (Minotakis & Faras 2024, 631-632, Dyer-Witheford, Kjøsen & Steinhoff 2019, 69). This stage may in fact be different, but historical study clarifies those divergences between the past and the present, honing our visions for what might be possible in the future.

With this in mind, contemporary theorists of work and technology have begun to productively look to historical antecedents to explain and demonstrate the practicality of a politics that respond to capitalist priorities around work and technology, learning lessons from the successes and limitations of the examples of Luddite resistance to the technological changes of the Industrial Revolution (Noble 1995), feminist movements' struggles to redefine work, productivity and free time (Weeks 2011, Hester and Srnicek 2023), decolonial and abolitionist positions against techno-racial systems (Browne 2015, Benjamin 2023), workers' persistent demands for shorter work days and weeks (Hunnicutt 1988 & 2013, Roediger & Foner 1989, Cutler 2004), workers' organising for worker-led innovation and "socially useful" and sustainable production (Nierling 2025), worker-recovered and -run enterprises and worker cooperative movements (Srnicek & Williams 2015), among others (Benanav & Flores 2023).

Surprisingly, scholars have neglected the history at the centre of this article – early twentieth-century discourses and demands around technological unemployment that contributed to the winning of Social Security and the large-scale establishment of retirement from work for older adults in the US. Perhaps it is overlooked because it is seen as part of a response to the larger economic crisis of the Great Depression, or because the resulting New Deal policies were reformist rather than radical: Keynesian-corporatist solutions to crises that would continue to reemerge. The critiques of technological unemployment and obsolescence that led to the Social Security solution were voiced by a broad political swathe of groups with a range of political positions from anti-capitalist, humanitarian and philanthropic, techno-utopian, and even reformist pro-capitalist, most with racist, sexist, and ableist assumptions in their definitions of productivity and social value. But the hegemony of the belief in technological unemployment and obsolescence, and the breadth of the voices that spoke it, proved to have been a strength when the moment came for their demands to be heard. That moment was a product of economic crisis – the Great Depression – but it was also a product of workers and organisers who drew attention to labour's lifelong exploitation and the possibility of greater liberation from work. And the victory was not small: no less than the *largest group of people in the US to win guaranteed income from the state*.

How did thinking about technological change, specifically concerns about technological unemployment and human obsolescence in the face of mechanisation, contribute to the winning of economic support for older adults in the US? In the first of its multiple sections, this article lays the groundwork for answering this question – or asking it at all – in political economic approaches to media history and their potential for contributing critical perspectives that elucidate both the past and present. The article then applies this approach in explaining the development of the discourse around older adults' technological unemployment, expressed in those terms in the early twentieth century, as well as, evocatively, as older adults being thrown on the “industrial scrap heap”. The section that follows reminds us that it was not the technologies themselves that hurt older workers, but instead their application toward capitalist imperatives. Workers, organisers, and even the scientific managers of the day saw work with machines as ageing workers, both physically weathering workers and culturally constructing them as incompatible with new technologies. Working within these assumptions, capitalists saw the removal of older adults from work as potentially beneficial to firms and the economy and workers and organisers saw the wealth of time and money generated by mechanisation as potentially offering older workers relief from work. Part 4 argues that workers, organisers and reformers mobilised these discourses from their various political orientations in a “mass movement for old age support” in the early twentieth century. Part 5 shows how these calls built upon – but also sometimes ran counter to – longstanding related demands of shorter work hours, unemployment protections, and other forms of universal or comprehensive forms of social security. The article concludes, then, with a call for our awareness of the ways in which critical discourses of capitalist application of technology can be tremendously powerful and successful in making claims on the forms of wealth produced by our labours – but that any potential resulting redistribution of this wealth is susceptible to perceptions of who is deemed worthy, often in terms of technology and labour, as defined by capital.

## 2. Foundations

This study brings together approaches from labour studies, history, and media and communication studies, a triangulation essential for understanding the historical moment at the centre of this article – the early twentieth century – as well as our current one. It takes inspiration from Vincent Mosco’s classic conceptualisation of the interrelated guiding commitments of work in the political economy of communication: “history, the social totality, moral philosophy, and praxis” (Mosco 2009, 81). Unlike conventional media history focused on a disconnected historical moment’s text, technology, industry or practice, what distinguishes a political economy orientation is a commitment to analysing media history in the context of “the social whole or the *totality of social relations*” of the historical moment (Mosco 2009, 16). Those interested in political economy look to history, not only to historicise and trace the origins of the structures of power of the present, but also to help us to see more clearly the dynamic, conflictive forces within capitalism that drive history. Historical inquiry reveals moments of historical change and reminds us of its possibility. Those of us concerned with the political economy of the present may also draw conclusions from historical class struggles as lessons for contemporary developments and challenges as we seek a more just future (Mosco 2009, Fuchs 2024a).

Methodologically, this article hopes to combine labour studies and related materialist traditions of political economy with analysis of the logics, aesthetics and ideas from cultural studies, or “ideology critique,” to examine the ways in which discourses about work, technology, and the economy shaped both systems of power and challenges to them (Marx 1867/1990, Mosco 2004, Fuchs 2024b, 133). In all historical moments, ideas about capitalism are shaped by, but also shape, its material realities. In the early twentieth century, beliefs about technological and industrial change, and perceived human obsolescence in relation to it, would shape the material realities of the modern life course.

Aaron Benanav (2019) has persuasively written against putting automation at the centre of the economic and labour history of the 20th century, arguing that unemployment in the last two decades is due not to technological change but rather industrial overcapacity and global competition leading to economic stagnation. Increased labour productivity due to technological development generated income for corporations and stockholders, which they put into financial capitalism's instruments for short-term profits and speculative investment, rather than productive investments that would stimulate economic growth and employment. But while arguing that automation explanations are misguided, Benanav does assert that they have served important imaginative purposes in the history of labour and capitalism. Citing Fredric Jameson, he sees automation discourses and related postwork politics (which see a technological solution to both unemployment and potential liberation from work) as important forms of capitalist critique and attempts to imagine emancipatory, utopian possibilities. But per Benanav they have not generated real change, partly because the economic crises predicted by automation critics have not appeared:

> "Visions of automated factories then appeared again in the 1930s, 1950s and 1980s, before their re-emergence in the 2010s. Each time, they were accompanied or shortly followed by predictions of a coming age of 'catastrophic unemployment and social breakdown', which could be prevented only if society were reorganized. To point out the periodicity of this discourse is not to say that its accompanying social visions should be dismissed. For one thing, the technological breakthroughs presaged by automation discourse could still be achieved at any time: just because they were wrong in the past does not necessarily mean that they will always be wrong in the future. More than that, these visions of automation have clearly been generative in social terms: they point to certain utopian possibilities latent within modern capitalist societies. The error in their approach is merely to suppose that, via ongoing technological shifts, these utopian possibilities will imminently be revealed via a catastrophe of mass unemployment" (Benanav 2019 citing Bix 2000, 305-307).

But it is the historical moment right before Benanav's periodisation – the first decades of the twentieth century – that is the exception that proves the rule. The critiques of technological change that emerged in the late 19th century continued through the early 20th century in multiple forms, especially in concern about older workers, found evidence in the catastrophic breakdown of the economy during the Great Depression and their arguments gained purchase in some of the proposed solutions to the crisis. In *Inventing Ourselves Out of Jobs*, Amy Sue Bix writes, "In the 1920s mechanizing production seemed to guarantee prosperity; in the 1930s, people feared that changing workplace technology might become America's social and economic downfall" (2000, 5). But the prosperity of the 1920s was not equally distributed, like our own period of income inequality, nor were the guarantees of mechanised production. Many of those labouring with machines saw them as threatening unemployment and obsolescence, at least for older workers. They also saw the potentially emancipatory possibility of technologically enabled reduction of human labour through reduced working hours, and even technological unemployment, through the large-scale retirement from work of older workers. These logics and demands predated the 1930s, when the economic crisis allowed for them to get traction in the proposals for old age pensions and Social Security. Well before the Depression, in the early 20th century, workers, social reformers, and even some businessmen were increasingly seeing the need for forms of old age insurance and security. They argued that the historical developments of capitalism in the late 19th and early 20th centuries, including the growth of monopoly capital, capital investment in technology and the mechanisation of labour, labour speed up, and associated age discrimination against perceived inefficient older workers led to both the need and possibility of systematising old age income and socialising the costs of the social reproduction of the elderly (Oran 2017, 150).

This history also reminds us that the temporalities of labour and life that we accept in our current moment are in large part constructions of capitalist imperatives and state policy. With the resulting federal old age insurance that came to be Social Security, both work and age became defined in relation to each other, and both by industrial and technological requirements. The terms of who was productive and who was not, what kind of life was deserving of social protection, what kind of work merited relief, how entitlements from the state could be justified in service to the economy, and how the life course should be paced, became renegotiated for the twentieth century and were built on discourses of technological unemployment and human obsolescence. After decades of demands and debate, Social Security encouraged the removal of a large group of workers from the workforce through retirement to increase the employment of other younger workers. It defined certain forms of waged, industrial labour as productive and deserving and left other people's work and lives unprotected. In this historical moment of the early twentieth century when the temporality of the waged work day and working life were not yet clearly fixed, we see can the foundation of our current debates around technological unemployment, whose time is deemed productive, how time away from waged work is defined, and the possibilities and pitfalls in the ways demands for protection from labour exploitation and displacement are made.


Figure 1: *American Labor Legislation Review,* December 1929, p. 350. Public domain.

## 3. The Industrial Scrap Heap

Workers, working-class organisations and their allied social reform groups had long sought to address the immiseration of their older members, loved ones, and future selves. But by the beginning of the twentieth century, old age poverty due to lifetimes of low wages was perceived to be further exacerbated by unemployment among older workers. The labour movement and social reformers repeated a common refrain: older workers were being thrown on the "industrial scrap heap," worn out by mechanised labour and facing age discrimination in modern industry (Devine 1908, Todd 1915, Epstein 1922 & 1929, Rubinow 1913 &1934, Squier 1912, Haber 2000, 32). A representative at the 1921 convention of the Ohio State Labor Federation urged passage of a resolution calling for a state pension system "'so that those who are on the scrap heap of industry will not have to spend their last days in charitable institutions'" (Anglim & Gratton 1987, 97-98). Delegates at the 1921 Illinois State Labor Federation in the same year used almost the same language: charging that it was "'a crime to throw [old workers] into the scrap heap, to go the slow starvation route'" when they were used up by industry and had become "'disabled through old age'" (Anglim & Gratton 1987, 97). At the 1928 American Federation of Labor convention, President Wiliam Green described machine-related labour displacement as among "'the most important problems affecting labour today'" (Bix 2000, 14). The message continued through the decade with a number of state labour conventions expressing concern about the impact of rapid mechanisation; months before the stock market crash, the 1929 Iowa State Federation of Labor sent a telegram directly to the White House imploring President Hoover to think about convening a special economic conference and providing relief for the "'growing army of the unemployed due to the encroachments of the machine age'" (Bix 2000, 15). The International Workers of the World used stronger language in their 1925 publication, *Unemployment and the Machine,* predicting no "limits to the unemployment of the future" due to machine-replacement of men, demanding a 6-hour day so that jobs might be shared among more workers (MacDonald 1925 in Bix 2000, 13).

"By the late 1920s, technology was one of the most common explanations of the employment problems of older workers," historian of retirement William Graebner has argued (1980, 21). A new phrase was coined, "technological unemployment" (Jacoby 1985, 168), and it became the justification for demands of workers, inspired broad social movements, drove research by federal commissions and Congressional investigations, and even was used by industrialists and Taylorist scientific managers (*New York Times* 1928, 15, *Christian Science Monitor* 1929a, 3, *Christian Science Monitor* 1929b, 7). Although the unemployment rate was low in the 1920s, economic historians argue that this concealed painful change for workers: the high rate of investment in labour-saving equipment and production plants drove job displacement, workers were pushed out of their manufacturing jobs and forced to look for new ones, while the new service sector industries were slow to absorb dislocated workers (Jacoby 1985, 167-170). The workers, organisers, and social reformers of the time argued that the application of these new technologies and the mechanisation of industries disproportionately impacted older workers.

Much of the push for pensions and old age security happened through Progressive era middle-class organisations and social reformers who studied old age poverty, published widely, and advocated for policies on the state and federal level through organisations such as the American Association for Labor Legislation and the American Association for Old Age Insurance (later the American Association for Social Security). The leading proponents of old age security of the first decades of the twentieth century, the likes of Abraham Epstein and I.M. Rubinow, diagnosed old age poverty as a product of modern industry and the speed and intensity at which it ran, and wore down workers. In his 1922 *Facing Old Age: A Study of Old Age Dependency in the United States and Old Age Pensions*, Abraham Epstein said this way: "It seems obvious that modern industry finds little use for the worn-out workers. It replaces and discards these aged wage-earners as it is in the habit of replacing and discarding the worn-out and inefficient machinery […] Modern machine industry [has] less need for expertness and experience and greater use of speed and rapid production. As a result, the younger generation, though less experienced, is continuously crowding out the older and less efficient workers" (Epstein 1922, 20). Epstein brought his arguments to his leadership of the Pennsylvania Commission on Old Age Pensions, drafting Pennsylvania's progressive and short-lived old age pension bill in 1921, before organising the American Association for Old Age Insurance. Similarly, medical doctor and economist I.M. Rubinow, one of the foremost theorists of social insurance who influenced decades of social reformers (and two Roosevelts) saw old age as defined by industry, by the "wage-system," by the "constant speeding up of industrial processes," such that older workers would be "disabled," not by physiology but the economy: "The economic disability of old age may arise suddenly while the aging worker is still fit for productive activity, but finds himself below the minimum level of productivity set by the employer […] Industrial efficiency, scientific management, Taylor system – these are all forces […] to use up human energy at greater speed […] and to dispense with it immediately when its high degree of efficiency begins to decline" (Rubinow 1913, 304-305).

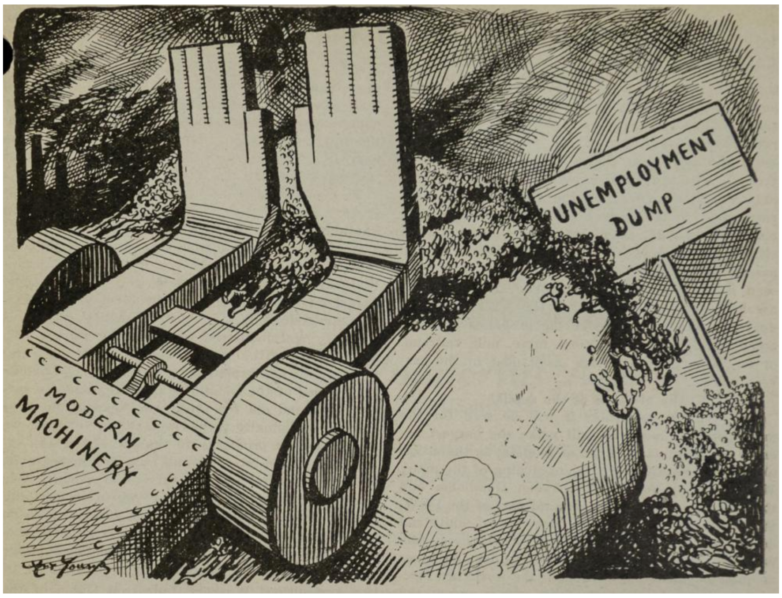


Figure 2: Art Young for Industrial Workers of the World (IWW) publication, *The Industrial Pioneer,* 1924; Reprinted on the cover of J. A. MacDonald, *Unemployment and the Machine* (Industrial Workers of the World, 1925). Public domain.

Writing by economists and physicians at the time accepted the theory of technological unemployment, but justified its logics in ageist terms, arguing that the problem did not reside in the technology, but rather in the older workers. Older workers were inflexible and maladaptive, explaining the technological unemployment as deserved due to intrinsic differences in older bodies, brains, and personalities (Graebner 1980, 21). Older workers were deemed inefficient, physically limited, and mentally unable to adapt to the increased mechanisation and accelerated speed of production. The term still used at the time to define a separation from work due to old age, or to "be retired," was "superannuation," or, in Latin to be "over" in "years," and in common parlance to be outdated and declared obsolete. Superannuation in the early twentieth century became "old age as defined by industrial requirements" (Graebner 1980, 137) which assumed a human technological obsolescence, the end of a “technological life” of a worker, who had a finite timespan of labour due to industrial and technological change. “Technology produced superannuated workers” (Graebner 1980, 23).

Such ageist assumptions, defined in relation to industrial and technological change, justified the unemployment of older workers. “According to the New York State Commission on Old Age Security, 89 percent of manufacturing firms discriminated against job candidates past middle age, while 59 percent refused even to accept applications from older workers” (Bix 2000, 34). The American Federation of Labor pointed to studies of the “elimination of the middle-aged man in industry” that “indicated that the most frequent limit for unskilled labour is 40 and for skilled labour 45 years […] the effect of speed and mass production on the policy of barring the doors to the employment of men over middle age” (*New York Times* 1929, 28). Older workers “‘are eliminated as ruthlessly as the machinery whenever it begins to show wear’” the *New York Times* quoted the AFL report (1929, 28). A Yale industrial engineer argued that modern science was increasing the health and lifespan of older workers and the increased mechanisation might actually make aging less of a drawback in modern industry, doing the heavy lifting and offsetting declines in endurance, yet, ironically, the modern emphasis on rapid technological change had started shrinking the period of employability. Executives and managers perceived older workers as out of step with the Machine Age, and younger workers more flexible and knowledgeable in adapting to new technology (Bix 2000, 34).

## 4. Technology for Capitalist Imperatives

It was not the imposition of new technologies, but their application for capitalist imperatives that threatened older adults’ employment. And many older workers and their labour organisations did not place the blame on the machines in and of themselves. They had a more nuanced interpretation: it was not the technology, but rather the speed at which it was operated that threatened older workers (Graebner 1980, 19). This new capitalist mode of production “placed a premium on youthful vigor” (Graebner 1980, 21) run by scientific managers hoping to maximise the efficiency of workers. Older workers were phased out for younger men whose bodies, brains, and practices would be more compatible with Taylorised production: workers with better eyesight, more speed, and more endurance; workers who would not stall the whole production line with breaks for rest or the bathroom, who did not drink as much alcohol during the day, did not have flexible interpretation of work hours, or were not as inflexible in their ways of work. To keep this speed up, age limits in hiring were becoming more commonplace in industries, incrementally replacing an older workforce, and some firms took the unpopular action of firing older employees (Graebner 1980, 22). Labour historians have documented how, among printers (Graebner 1980), machinists (Montgomery 1980), and steel workers (Stone 2004), older workers were replaced with younger. More common than firing older workers, workers were moved to less skilled jobs. The period’s focus on improving industrial efficiency through new technology (both machines that workers worked with and stopwatches and timeclocks that measured their labour) was wrought both by speed and through the division of labour that separated expertise from execution (Gutman 1976, Thompson 1968, Montgomery 1980). The experience, knowledge, skills, work habits, and cultures of older skilled craftsmen no longer held the same value for bosses and could even be seen as a detriment to modern industrial work processes (Williamson, Shindul & Evans 1985, 75).

Herbert Hoover's Committee on Recent Economic Changes of the President's Conference on Unemployment boiled the changes down to the first word of its 1929 report: "acceleration" (Committee on Recent Economic Changes 1929, ix). The committee found that increased speed of production and "productivity per man-hour", via electrification, modern machinery, and scientific management was resulting in technological unemployment: "workers displaced by the introduction of machinery or improved processes" (xvii). "[T]he time has come to devote continuing attention not only to the problems of cyclical unemployment but also to this newer problem of 'technological' unemployment if we are to forestall hardship and uncertainty in the lives of the workers," the Committee asserted (xvii).

Communications industries were locations of significant technological development, and in the context of print, worker displacement. Printers saw significant changes to their employment and labour. Historians of print workers note that while "the fear of human displacement was common enough" in broader society, among printers it was more severe (Thompson 2024, 317). Of the challenges faced by his union of Philadelphia workers, the local president asserted, "none have had more disastrous effects than the types-setting machines that are now in almost every newspaper and large book and job office in the country" (Moloshok 2014, 5). "Between 1895 and 1915, older workers were phased out for younger men with better eyesight, more speed, and more endurance" for working with these machines (Graebner 1980, 22). A 74-year-old member of the Dayton Typographical Union who resided in the Union Printers' Home put his understanding of the experience of the technological unemployment by the Linotype machine into verse in the *Inland Printer* in 1911:

> The typo's old pick from the case
> Has changed to machine's rapid pace –
> To iron and steel,
> To shafting and wheel,
> And the keyboard has taken his place.
>
> The clinking old rule and the stick,
> With their time-beating, rattling click,
> Are now laid away,
> And slow 'prints' and gray
> Are 'out' by a Linotype trick.
>
> Adieu to the 'strings' and the paste,
> To the longest we often have raced;
> Old-timers are 'out,'
> But the young comp.'s about
> And filling up columns with haste (Graebner 1980, 22).

"It was generally recognized that revolutionary technological changes in printing had destroyed or severely undermined the ability of older printers" and, as a result the International Typographical Union (ITU) that represented them "was the scene of an extensive debate over the pension in the first decade of the century" (Graebner 1980, 135). Among union members, pensions were seen as "a logical response to superannuation brought on by changes in technology and by the high speeds at which capitalists chose to operate the new machinery" (Graebner 1980, 135). As a Bureau of Labor Statistics report described the shift to "machine composition" in the first decades of the twentieth century, “three or four hands were eliminated, out of every five formerly engaged in setting and distributing type. Consequently, the adoption of the machine method displaced a great number of typesetters” (US Department of Labor 1929, 10-11). Most workers were absorbed by the rapid expansion of the print industry during the boom in the number of newspapers and periodicals in the early twentieth century, economists of the time argued. But older workers and those deemed unsuitable for using the new machines were shifted to less skilled jobs or took the union pension if available to them. Even with the growth of the number of print workers overall in the US, an economist worried about the potential for additional oncoming unemployment, “closer analysis, however, discloses the fact that despite the expansion of commercial printing up to 1930, which gave employment to an increasing number of pressroom workers from year to year, fewer men have been employed to each one hundred of the newer presses than to each one hundred of the old. And this is a fact which opens opportunity for speculation as to the trend of employment as the new presses continue to replace the old” (Faulkner Baker 1932, 670).

Film, itself a modern industry, made more visible the precarity of older workers because of their perceived inefficiency. The imprinting of the issue in the popular imagination can be seen in D.W. Griffith’s 1911 film *What Shall We Do With Our Old?* With the title card, “Founded upon an actual occurrence,” it was perhaps one of the first examples of a “based on a true story” caption. With this assertion of truth and Griffith’s typical concern for social dramas and their effect on (white) men, he portrays a foreman firing a series of older workers who are replaced in rapid succession with younger, bigger, presumably stronger and faster men. The film helped solidify the popular understanding of human obsolescence as a modern labour and social problem – the almost mechanistic replacement of older workers with younger ones and the resulting unemployment of older men – with the speed and realism of the new medium of film, itself replacing older forms of evidence and entertainment.

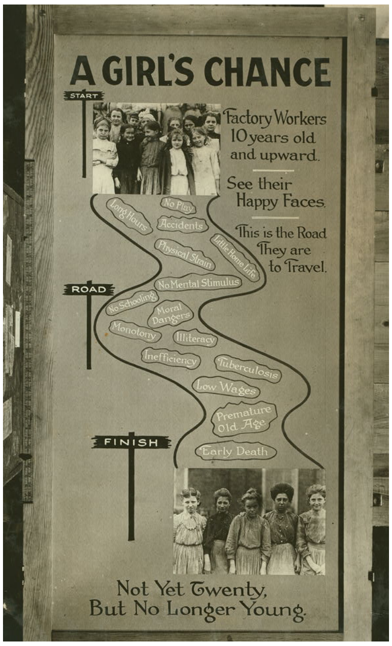


Figure 3: National Child Labor Committee Exhibit Panel with Lewis Hine photos, circa 1913, Library of Congress Prints and Photographs Division, LOT 7483, v. 2, no. 3518. Public domain.

Pension advocates argued that the conditions of modern industrial life, technological imposition and speed-ups, wore workers out, weathering them before their time. The industrial worker was being "used up" by industrial capitalism as the Massachusetts Special Commission on Social Insurance asserted in 1916 (Anglim & Gratton 1987, 101). A leader of the New Bedford Association of Cotton Weavers argued that the faster speed of the looms wore workers out, necessitating pensions for older workers: "'If you can tax people for war, you can tax them for the industrial war which has made them grow old'" (Anglim & Gratton 1987, 100). The discourse of industrial weathering was prominent in labour reformers' advocacy for workers in this time period. The arguments against child labour often portrayed a shortened life course for children who lost years to industrial labour which prematurely aged them. With this logic, technological change accelerated both workers' obsolescence, making them outdated or no longer useful, as well as their senescence – drawing attention to the natural declension of older age and intensifying it through the work conditions of modern industry.

Even much of the business community was concerned about what they framed as technological unemployment: "'Labor-saving machinery,'" commented the *Commercial and Financial Chronicle* in 1929, "'had displaced men and reduced opportunity'" (Graebner 1980, 21). Workers were being replaced by machines, or at least, machines were taking control of work processes and taking away the skilled craft production of older workers. It was these arguments of technological unemployment, or for them more compellingly, the technological unemployability of older workers, that persuaded some industrialists in the 1910s and 20s to establish retirement and pension plans as "one answer to the problem of removing older workers from the work force" (Williamson, Shindul & Evans 1985, 76). Superannuation assumed technological obsolescence and senescence, and thus a limit to one's "work-life," at its best, compelled by the financial promise of a pension.

The Taylor Society's scientific management-minded members were also concerned with how to maximise productivity through machines if they also seemed to tire and drain industrial workers, as well as how to address labour's demands for a share in the wealth of that productivity. Should workers be given a "Shorter Work-Life or Work-Week," they asked in their winter meeting and published in their *Bulletin* in 1928, as workers seemed to be demanding both. The American Federation of Labor was campaigning for a 5-day work week, and older workers wanted economic security when they would no longer work, decided either by their boss or themselves. The industrialists, scientific managers, professors, and social reformers of the Tayor Society focused on the effects of "mechanisation" and the "technological unemployment" of older workers "who in old age have become maladjusted because of physical infirmity or obsolescence of skill. It is in the first half of a generation's life that it is fresh, strong, plastic, adaptable and highly productive; and in the second half that it is relatively weak, fatigued, inflexible, and non-adaptable to new technological processes," as articulated by the Taylor Society's managing director (1928, 231).

Remarkably, they openly debated corporate pensions, state-run pensions and social insurance, while also placing faith in their existing methods – that "the maximum amount of work, *scientifically* determined, that workers can do and thrive under" could be identified and govern the standard length of the work period (day, week, life). "That we are in a scientific industrial age; that our progression is rapid; that our production is increasing; that men are too largely absorbed by the machine and machine processes; that we know there is a problem in social adjustment; should admit that we know it; and that we have precedent for solving it" (Taylor Society 1928, 246). Their precedent was the industrial engineering they had already wrought on labour that, in many ways, had produced the problem in front of them. They expressed similar confidence in their power to wield technology to solve this problem: that "a substantial portion of the larger social income which results from marked increase in technological efficiency should be handled after the manner of a credit to be drawn upon by workers after middle age, when physical capacity and productivity decrease as a result of age and of inflexibility in adjustment to new technological conditions" (Taylor Society 1928, 230). While some middle class Taylorists had concerns about how workers might spend their newly acquired free time and money, others assured that "that workers will learn to live when our production machinery makes it possible" (Taylor Society 1928, 246). The issue of the technological obsolescence and unemployment of older workers was urgent for workers, they repeated again in 1929, just before the stock market crash, expressing concern about age discrimination for workers at ages as young as 45 for men and 35 for women (Taylor Society 1929, 226-228). "With the rapidity with which they are putting machines into various industries and eliminating all forms of manual labour, if we forecast the future in the light of the present, we have every reason to believe it is going to be worse rather than better" (Taylor Society 1929, 226-223).

## 5. A Mass Movement for Old Age Support

This period's "mass movement for old age support," as historian Jennifer Klein calls it, mobilised not just unionists and leftists, but also previously unorganised older unemployed persons who built and joined a number of organisations to demand pensions from industries and the state, and even more powerfully, used "old-age poverty and dependency to spark a national debate" on economic security in the US (2006, 67-69)[1]. Workers and their labour organisations argued that older workers were vulnerable to unemployment and obsolescence, being pushed out or worn out by the technological speed-ups of modern industrial life. They pushed for pensions, arguing that saving for old age was impossible given wages and the cost of living, acting to prevent the impoverishment of their fellow workers and future selves. Younger workers were also concerned about their current employment, worried that desperate older workers would accept lower wages and thus both drive wages down and threaten the employment of younger workers (Anglim & Gratton 1987, 102).

The issue of old age pensions garnered "sustained and vigorous" support from rank-and-file labour representatives (Anglim & Gratton 1987, 102). But the national leadership of the American Federation of Labor took public stands against state pension programs for years through the 1920s, followed by weak gestures in their support, because of the leadership's "anti-statism" and interest in labour autonomy, which translated into suspicion of social welfare from the state. The AFL national convention "urged that individual unions develop their own pensions, apparently to avoid dependence on the state" (Anglim & Gratton 1987, 92). But state-level federations of labour regularly violated the national AFL line on public old age relief by consistently passing resolutions in support of old age pensions, campaigning for them through their labour and fraternal organisations, and lobbying politicians for state-level public pension legislation. Labour federations debated various old age security schemes for workers (for example, advocating for noncontributory state pensions over those that would "tax" the working class by requiring them to pay into them) and succeeded in winning state-level

[1] In addition to the organisations discussed in this article, the Railroad Employees National Pension Association, the National Annuity League, the Townsend movement, the American Pension Union and the McLain Movement.

public pensions in several states in the 1910s and 20s, however small and inconsistent the support they provided older workers (Anglim & Gratton 1987, 93-99).

Old age pensions backed by the government were appealing to many because of organised labour's conflicted relationship with private, employer pensions, however few and small they were in the early twentieth century. Unions worried that the corporate paternalism of the pensions might build loyalty to the employer, make workers more docile, and become a form of employer control over workers. Private, noncontributory employer pensions were not portable if a worker moved jobs or in the case of certain forms of termination. During labour actions, the loss of an employer pension could be used as a threat to draw older workers back into work as scabs. To try to combat this, unions even took up the financial support of older workers who lost pensions or employment during strikes, a kind of makeshift old age security out of working-class solidarity. Pensions might conscript workers into investing in the company's profit motive and the boss's managerial logics with the existence of the pension relying on the success of the company. Labour organisations also blamed pensions from the federal government (such as war pensions) and private employers for serving to establish age limits for employment across industries, implying ceilings to the productivity of older workers. Forms of group insurance and workmen's compensation also inadvertently motivated employers to push out older workers, who were deemed costly risks (*New York Times* 1929, 28). But workers still wanted greater economic security in their older age, and when labour unions did not advocate for old age support as vociferously as members wanted, they sometimes mobilised outside the traditional union leadership; for example, railroad workers organised the Railroad Employees National Pension Association when they were dissatisfied that pensions were not central to their unions' demands. Unions negotiated this complex terrain of fighting for old age support for their members by pushing for greater worker autonomy through more portable contributory pension schemes, advocating for public pension programs, and creating other forms of union-provided old age support. In the demand for public pensions, unions, county and state labour federations, and social workers and reformers collaborated in "a broad working-class political effort" (Anglim & Gratton 1987, 102) for old age security.

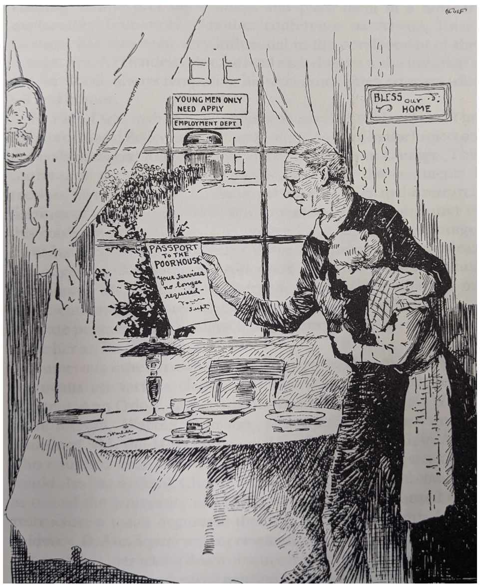


Figure 4: *The Eagle Magazine,* January 1925, p. 10. Public domain.

Fraternal societies had long attempted to provide economic security to their middle- and working-class members through forms of mutual aid, life insurance, and old age care. It was a working-class fraternal organisation, the Fraternal Order of the Eagles, that most vocally agitated for public legislation for old age pensions in the first decades of the twentieth century[2]. The Eagles mobilised the language of technological and industrial change to suggest that older workers were deserving of economic support. Frank Hering, head of the Eagles (and former Notre Dame football coach), asserted that older workers were "simply victims of an economic system" that was installing "swift-speeding modern machinery" that was overtaking them. Evoking loud veterans and war applied to the industrial changes in the US, evoking nationalism, industrialism, and the successful example of widespread pensions for Civil War veterans, Hering and the Eagles called for pensions for "age disabled veterans in our Country's industrial army" (Hering 1922, 5). Eagles created an Old-Age Pension League to push local and state governments toward pension legislation. In Milwaukee, the four thousand Eagles were able to enrol ten thousand people in the League. They hosted speakers, distributed pamphlets and even rented a theatre to put on a production about the ravages of old age, followed by an appeal to join the pension league (Chappel 2024, 59). While drawing greater attention to the issue of old age poverty, the Eagle's vision of change was limited, perhaps by its white male, mostly middle-class membership, who saw those in need as industrial workers that looked like them (Chappel 2024, 59 & 34-35).

Were older adults actually becoming technologically unemployed and in need of economic assistance? The discourses around technological unemployment and its effects on a group of people, older adults in the US, were powerful and persuasive – but they were not entirely representative of the experience of older workers. In fact, there is extensive historiographic debate over the causes and extent of old age poverty in the early twentieth century and whether industrialisation increased or diminished old-age dependency. Historians have dispensed with narratives that portray pre-industrial agrarian life as the "good old times" to grow old and, in contrast, the modern economy producing pauperisation amongst the old through the dissolution of traditional economic and familial supports and industrialisation and the technological processes of modern factory labour, weathering workers or being incompatible with their declining minds and bodies. On the other side of what has been framed as a "modernisation" debate (Haber & Gratton 1994, 206, Winant 2021, 78) historians have seen the industrial economy as both offering more opportunity for wealth for the old while also producing the old as a distinct population and subject to control with pensions and Social Security creating old age as a period of dependency. The unemployment rate was low in the 1920s, but as mentioned above, there was painful job displacement for older workers (Jacoby 1985, 167-170). There is significant historical evidence that older adults were still in the paid workforce even in the Depression – the 1930 census showed 70 per cent of men and 11 per cent of women aged 65-69 reported themselves working, although they were more often employed in areas like agriculture and domestic work. The census data has been notoriously difficult to read for economic and social historians: it at once gives the impression that retirement first emerged in the later nineteenth century, but analysis of the US and British censuses (there appear to be no equivalent studies of other countries) demonstrates that most of the apparent nineteenth century decline in employment at older ages was largely due to the decline of agriculture (Thane 2003, 100). Retirement from white-collar occupations, combined with improved occupational pensions, was visible through the first half of the twentieth

[2] Anglim and Gratton (1987) characterize the Eagles as "working class fraternity" (94).

century. And many older adults had other forms of financial support that allowed for a version of retirement – private and public (state or federal government, often military) pensions, savings, money provided by children, or property ownership that allowed for the promise of inheritance to younger generations in return for care in the owner's old age (Haber & Gratton 1994, 206, Chappel 2024, 37-40, Gratton 1996, Carter & Sutch 1996, Hartog 2012).

Poorer older adults had to piece together multiple forms of work in an "economy of makeshifts," that would keep them in the census work numbers and also in precarious economic positions (Thane 2003, 100). "This unremitting lifetime toil was relieved for the poorest people with the emergence of retirement as a normal phase of life only in the mid twentieth century" (Thane 2003, 99). Retirement did not become a widespread expectation until the availability of Social Security in the 1940s, and even then, because the program's payroll-based system excluded major job sectors as well as informal and unpaid social reproductive work, a significant share of Black Americans, women, and rural labourers were left out (Thane 2003, 99-100). What is most interesting, regardless of how well older adults were actually weathering industrialisation and the modern economy, in the early twentieth century, the thinking and discourses about industrialisation – and specifically technological change's impact on older workers – by labour, social reformers, and industrialists themselves was leveraged to win pensions and eventually Social Security for older adults in the US.

As the country sunk into the economic crisis of the Depression, working class people demanded old age support through their unions, fraternal and social organisations, and groups specifically formed to advocate for federal and state pensions for older adults, partnering with social reform organisations and following populist political leaders. By the early 1930s, they had won public pensions for the indigent aged in 30 US states (Anglim & Gratton 1987, 94-95, Amenta & Zylan 1991, 251 & 256). Concern about technological unemployment was central to most of these organisations, across their political positions. The onset of the Great Depression led more people to blame technology for the now widespread unemployment, and the inability of economists to explain the cause of the crisis made these groups' arguments more persuasive (Akin 1977, 75).

By 1930, John Maynard Keynes had adopted the phrase already in use in popular writing and thought, "*technological unemployment,"* asserting it was a "temporary phase of maladjustment" when the "increase of technical efficiency has been taking place faster than we can deal with the problem of labour absorption" (Keynes 1930/1932, 364 and 358). He countered the economic pessimism of the moment with an ageist metaphor: the US was "suffering, not from the rheumatics of old age, but from the growing-pains of over-rapid changes" (Keynes 1930/1932, 358). Keynes predicted that in one hundred years (by 2030), technological change and capital accumulation would have brought about increased standards of living, reduced working hours (around 15 hours a week), and the solution to the "economic problem" of scarcity, leaving humanity with the challenge of using their leisure time wisely. A different view of technological unemployment had been articulated decades earlier, by Karl Marx who saw capitalists applying technology to displace workers to exploit the remaining ones more intensely: "The machine […] is a means for producing surplus-value […] not only by replacing labour-power, but by subjecting the labour-power that remains more thoroughly to capital" (Marx 1867/1990, 492). The machine production of this reserve army of the unemployed was a functional, structural product of capitalism that intensified the exploitation of employed workers, not just a temporary product of labour displacement from new industrial technologies. Technological application under capitalism would worsen inequality, Marx suggested, not lead to an affluence of wealth and time for all, unless revolutionary political and social changes abolished private ownership and enacted collective control over the means of production. Even among mainstream economists, technological unemployment arguments were gaining greater purchase. Ewan Clague, a labour economist and future Commissioner of Labor Statistics for the Department of Labor predicted “the so-called technological unemployment of which we have heard so much during the depression […] will continue to large" (1935). Other economists disagreed with the diagnosis, seeking out other supply-side reasons for the crisis. But this reformist (Keynes) and revolutionary (Marx) thinking would inspire thinking on the left about the risks and potential of technological change for workers, young and old.

In the 1930s, the Townsend Movement mobilised older adults and others around demand-side and technological unemployment solutions to the Depression, proposing the leveraging of a new structural position for older adults in the economy. The Townsend Plan was organised around generous monthly payments to all Americans over the age of sixty. The Townsend Plan held that less and less labour power would be needed to run the machines of modern business, which would create unemployment but also enable freedom from work in youth and old age – two stages in the life course they defined in relation to absence from work with machines, which would be intensified during middle age (Amenta 2006, 43). “Manpower, from 20 to 60 years of age, plus modern machines in mine, mill, factory & farm will provide a high standard of life for every man, woman and child in the US,” the Townsend Plan proposed, as illustrated in “The Span of Life from Birth to Death” (below).

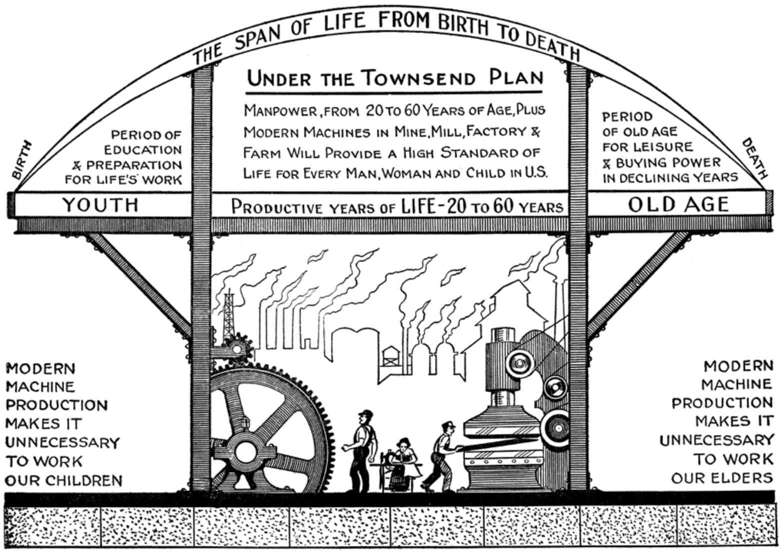


Figure 5: J.W. Brinton, *The Townsend National Recovery Plan: The Solution of Your Problem* (Chicago, Townsend National Weekly, 1936), pp. 48-49. Public domain, copyright expired according to https://exhibits.stanford.edu/copyrightrenewals and https://vcc.copyright.gov/browse (accessed on 4 May 2025).

Recipients would receive a high monthly pension, which they would have to spend each month completely. The Plan thus had multiple aims: to lift the poor old out of poverty, remove them from the labour market to stop their competition for jobs with younger workers, and compel their spending to stimulate the economy. Older adults would retire from work but become productive through consumption. Unlike proposals from the Fraternal Order of Eagles or organised labour in the US, the Townsend Plan was truly universal – at least for every person over the age of 60 – not means-tested or even based on work or income generated at earlier ages. This universal social support for older adults would be paid for through a new tax, not taken from workers' own contributions (as Social Security would later propose).

While this support was progressive in its universality and influenced by socialist orientations, it was far from a critique of American capitalism or a Marxist proposal for worker control of the means of production; the Townsend Movement was nationalistic and its official organs celebrated the basic current structure of American capitalism, which could and should continue to grow in their view, the growth of the economy would provide their hoped-for economic benefits. And while universal across class, race, and gender for older adults, these benefits would not be dispersed to everyone across the generations, for example, more machines might enable shorter work hours for all people. Instead, as their motto proclaimed, it was "Youth for Work, Age for Leisure." The Townsend Movement claimed millions of proponents via Townsend Clubs, door-to-door canvassing and petitions (Amenta & Zylan 1991, 251). The leaders often exaggerated its membership, but its Townsend Plan generated significant support among working- and middle-class older adults in California and parts of the US West and Midwest. The impact of the Townsend Movement would be felt in a range of Depression-era economic proposals, including socialist Upton Sinclair's End Poverty in California, radical populist authoritarian Huey Long's Share Our Wealth, populist antisemitic demagogue Father Charles E. Coughlin's National Union for Social Justice, and the federal politics that would lead to Social Security[3].

For many, the hopes to remake the US economy and society in more just and humane terms hinged on the development and application of technology, often exemplified by the removal of older adults from the workforce. The technological and social utopia imagined by Edward Bellamy in *Looking Backwards* and promoted by "Nationalist Clubs" around the country from the late 19th century envisioned an ideal society with state ownership of capital and the maximisation of technology and industrial efficiency. Machines would work, human employment would be voluntary, and working hours short until you were 45, after which time people would retire from work for the state for leisure, recreation and the development of interests, tastes, and social relationships. The "looking backwards" of the title suggested the protagonist's perspective via time travel not just on the cruel realities of his 19th-century capitalist present, but of the potential for middle- and older-age to become a period of reflection, renewal, and growth that one looks forward to. "Middle age and what you would have called old age are considered, rather than youth, the enviable time of life […] It is a strange reflection that at forty-five, when we are just entering upon the most enjoyable period of life, you already began to think of growing old and to look backward. With you it was the forenoon, with us it is the afternoon, which is the brighter half of life" (Bellamy 1888, 278). Technocracy, a movement that emerged after WWI and gained popularity in the early 1930s, combined elements many of the political and scientific ideologies of the previous decades including the technological utopianism of Bellamyite socialism, the critiques of the profit motives and wastefulness of the business and leisure class in the writings of Thorstein Veblen, and the reform, rationality, and social engineering of the philosophy of scientific management. Technocrats argued that both the economic and political systems were ill-suited for modern technology, allowing the replacement of

[3] As well as similar programs and plans, including the Bigelow Plan in Ohio, the General Welfare Federation of America, and the Ham & Eggs pension scheme (Social Security Administration of the USA).

men with machines. Their positions attracted wide public interest (Akin 1977, 74). Technocrats presented charts based on a survey of more than 300 industries showing employment peaking in 1918 and declining in the following decade, but production continued to increase, peaking in 1929; production had increased while employment declined. This situation, they explained, was the result of the new technologies of machine production in the late 18th and early 19th centuries, resulting in an increase in the output per worker and a decline in the number of man-hours needed to produce a given product (Akin 1977, 75). While the economy had been able to absorb the technologically unemployed for a while with the growth of new industries, with the rapid increase of productivity per worker production soon outstripped employment, per the Technocrats interpretation. Due to high technological unemployment, consumers lacked the buying power to absorb the increased production, resulting in the Great Depression. But this was not just a temporary state of affairs for the Technocrats, who argued that the acceleration in automation with technology held the distinct possibility of displacing human workers and making them completely obsolete (Akin 1977, 76). Older people were prevalent and conspicuous in the Technocracy movement before becoming involved in the Townsend movement (Akin 1977, 105 & 114). While the Technocrats attracted some socialists and Wobblies, they often defected for a lack of political perspective or action among the group, leaving a core of white professionals as well as industrial workers. While the Technocrats were short on specifics, they argued for rationalisation of production by technicians and engineers, taking industrial decisions out of the hands of both the market and the political system, which were wrought with greed, inefficiencies, and the production of unemployment. The whole economy should be rationalised by technical engineers who could maximise technology and production to bring about greater abundance and leisure. Society would be organised around the principle of "production for use" to balance production and distribution to maximise production, rather than profits (Akin 1977, 79). For the Technocrats, the problem was technological, as was the solution.

## 6. Shorter Work Week or Work Life?

Old age security had convergences and conflicts with what might be seen as a sibling demand by workers: the reduction in working hours. Both movements sought to address capitalist exploitation of workers using the logics of the labour disruptions of technology and the temporality of workers' lives. Like old age security, shorter hours demanded broadened out working-class politics from existing labour unions and politics. The shorter hours movements, driven as much by socialists, communists and anarchists as organised labour, sought to unify the working class with a demand that cut across industries and job categories to improve the lives of all waged workers. These movements won, through contracts and legislation, the reduction of work from 12-hour days, six days a week in 1840, to eventually, 8-hour days 5 days week in 1938, a reduction of 55% – with expectations by many that progress on reduced hours would continue apace with 6- and then 4- hour workdays in the future (Roediger & Foner 1989, x). The shorter hours movement was a global working-class struggle, which included successes like ratification by 52 countries of the International Labour Organization's 1919 convention limiting work to eight-hour days – the United States was not a signatory (ILO 1919).

Shorter hours campaigners of the 1920s and 1930s US, who carried on the decades-long demand of workers to reduce working hours, also argued that technological change intensified labour and threatened technology-induced unemployment. In 1932, in the depths of the Depression, Hugo Black (of Alabama) proposed legislation to enact a 30-hour work week in the United States. In the ensuing congressional discussion of the bill, all the labour witnesses in favour expressed the belief that unemployment was due to technological improvements and that reducing the work week would offset technological unemployment. Industry had become so mechanised that it was utterly impossible to provide work opportunities for all workers, they argued. Unless the length of the working day came down, the United States would have to be prepared to maintain "a permanent army of the unemployed" (Roediger & Foner 1989*,* 247).

But shorter-hours campaigners also saw the possibility of labour-saving technology in lessening work, hoping to share directly in the productivity of so-called "labour-saving machinery." If capital extracted greater productivity from workers through mechanisation, weathering workers and threatening job loss, workers should demand shorter hours to counteract risks and require the hiring of more workers to address unemployment. One of the major connections between the movements for shorter hours and shorter work life was their cure for unemployment, which would be called the "work-sharing" demand. Retirement of older workers, advocates for old age security argued, would not only be a benefit to workers in their old age, but would increase employment by opening jobs for younger workers. The greater the support, and the younger the age it was offered to people, the more enticing retirement would be. Historians Graebner and Benjamin Hunnicutt have argued that the New Dealers developed the Social Security Act with unemployment as their chief concern, quoting an influential member of the Committee on Economic Security describing their work as a "'plan to take men out of the labor market when they were superannuated'" (Hunnicutt 1988, 224). Similarly, the fight for shorter hours was not only for "rest" and "what we will," but for the wider and more equitable distribution of waged work. They argued that reducing the working hours of the existing workforce (while ideally maintaining their wages) would require employers to hire more workers, helping to counter unemployment and the cyclical layoffs and underemployment that even regularly employed wage workers faced. There would be less work for the individual and more work for all. Age was also central to how shorter-hour organisers framed labour exploitation, mobilising workers' understanding of how long hours of work, especially in mechanised production, prematurely aged workers. Eight hour demands by workers often were paired with demands for the end of child labour, in the interest of the youngest members of the working class, as a way to stop the undercutting of (white, male) adult wages, and as a strategy to expand employment for those deemed of legitimate working age, and would increasingly form ideologies of age as a category for specific protections from labour (Roediger & Foner 1989*,* 120).

But these two interrelated demands for a shorter work week and a shorter work life also ran in conflict with each other. As workers won victories of shorter work hours, capital intensified expectations of efficiency and increased investment in industrial technology. Employers strove to recover the costs of a shorter workday by applying technologies to maximise the production of each worker. "Employers apparently felt that the high capital costs of new machinery could be justified only if that machinery were operated at speeds that led inevitably to the obsolescence of workers too old to maintain required levels of productivity" (Graebner 1980, 19). Work acceleration and mechanisation challenged older workers, and fuelled new managerial ageism and bias towards younger employees as speedier and more adaptive (over the knowledge and stability of older workers) (Graebner 1980, 8). Older workers also often bore the brunt of retaliation during strikes, of which many were over 10-hour and 8-hour day demands. Older and middle-aged workers were frequently the first to lose their jobs during labour actions, especially if their wages had increased over time, and employers judged them as diminishing returns in productivity, while potentially embodying increased costs if the company offered a private pension. Older workers had helped win shorter workdays, and in the process had lost jobs and financial support in old age. As a leader of the International Typographical Union expressed it when advocating for a union-supplied pension for members: "'For these benefits lasting and positive to the young men, the old men have sacrificed their all'" (Graebner 1980, 136).

But economic support for older workers would win out over the ongoing demand for a shorter work week, and retirement would eventually become commonplace with state and corporate support, while the shorter hours demand would lose political momentum (Hunnicutt 1988, 251-265). There are several political, social, and cultural causes and explanations, as historian Benjamin Hunnicutt explains. Politically, at the federal level, Roosevelt played the demands of the 30-hour work week and old age pensions against each other, using New Deal "retirement programs to placate labour and blunt the shorter-hour insurgency," even as the political representatives of these movements in Congress were one in the same. He rejected 30-hour legislation, while endorsing the Railroad Pension Act of 1934 and Social Security in 1935, which enacted minimal old age and unemployment insurance but did not fully offer either older or younger workers relief from work. The New Deal did not fully commit to the work reduction and work sharing logics of both the demands for a shorter work-week and work-life, creating Social Security and unemployment insurance to relieve unemployment, but neglecting the demand for a shorter work week and generally emphasising total work creation in the multiple employment and infrastructure publics works projects of New Deal agencies (Hunnicutt 1988, 225). Social Security, both in its role in sidelining legislation for shorter hours and institutionalising retirement, contributed to the construction of the twentieth-century "work day" and "working life." In much the same way that EP Thompson described the process by which agrarian and early-industrial work went from the longer, but more porous, sociable workday (Thompson 1968), to the more uniform and compressed workday with longer and more predictable periods of personal time (Cross 1989) of the 40-hour week[4], so also in the mid-twentieth century the work-life became more defined, focused and intensive in young adulthood and middle-age. Workers progressively dropped as a demand the extension of more hours for leisure, which was increasingly understood to be the payoff of retirement after one's working life.

The labour movement and the proponents of popular movements described above pushed for more radical solutions to old age security than that of the Social Security Act of 1935. The labour-backed Lundeen bill, called the Workers' Unemployment Insurance Bill, placed the demands for old age security in a larger program of social insurance and economic redistribution, basically covering all unemployment, whether for age, disability, pregnancy, sickness, injury, as well as job loss or lack of job availability, and provided unemployment compensation the same as average weekly pay cheques so that it would have "benefits attractive enough to lure the marginally employed" to its basic income. Funded by individual and corporate income taxes, and a new tax on gifts and inheritances, the program would be run by representatives elected by "the workers" (Hunnicutt 1988, 236).

The Social Security bill that workers did get was far more limited; even for older adults, it was far from a radical social program to lift all older people out of poverty. Members of the labour movement, the old age security movement, and social reformers had advocated for more comprehensive protection against social risk (for health, disability, unemployment, for example, as well as old age), universal coverage (for all

[4] A 40-hour work week with overtime legislated by the Fair Labor Standards Act of 1938.

the old regardless of work history, if not all citizens), and a more redistributive system of support (paid out of taxation rather than payroll deductions) (Zdencanovic 2001). But US Social Security was created as a contributory social insurance programme structured like an annuity in which workers and employers each paid half the cost, the former from their pay cheques, to the US federal government, with the promise that the government would pay the worker a retirement pension in the future. At its founding, Social Security's old age pensions were available only to those from industrial and commercial sectors who paid into the system from formal employment, leaving out most women wagelessly doing reproductive work, and all those people informally- or under-employed. Domestic workers and agricultural workers were specifically excluded, including large numbers of Black and Brown workers in those sectors, legitimising the informality and precarity of their work by not requiring tax collection or providing the entitlement of Social Security in old age.[5] The discourses of the technological unemployment and obsolescence of the largely white, male industrial working class contributed to the sense that certain workers were in need of protection in old age and whose retirement would stimulate the labour market, contributing to the limited version of the Social Security enacted in 1935.

## 7. Conclusion

Discourses of technological unemployment and obsolescence in the first decades of the twentieth century were especially powerful in the arguments for old age pensions and Social Security in the United States in the 1920s and 30s. They contributed to the winning of guaranteed income from the state for the largest number of people in US history. Arguments of technological unemployment proved to be persuasive, especially when focused on a specific population (in this case, defined by age), even if it was not technology itself but the social and economic structures that prioritise efficiency and profit over the well-being of all workers (Noble 1995). The power of the arguments about technological unemployment and the focus on industrial workers contributed to the large numbers of people left out of the benefits of Social Security and the promise of retirement – namely, those doing domestic work, agricultural work, in informal sectors, and those doing the unpaid work of social reproduction, largely women and people of colour. Social Security was linked to age, forms of work, and payroll contributions, perpetuating the distinction between the worthy and unworthy of social support, and creating a program that was far from the comprehensive, universal and redistributive social insurance envisioned by many organisers and social reformers.

How might contemporary displacements of workers by capital's drive to profit through automation and artificial intelligence be handled? What demands can we make and through what language? How can we ensure the distribution of the profits, in terms of money, time, knowledge, etc., that are made through both our waged work and our unwaged contributions, without reproducing the inequities created by the privileging of certain forms of work and technologies defined by capitalist imperatives? Of course, in this history, there was a specific context of crisis that made the issue more acute and made policymakers more receptive to the calls for reform – the Great Depression. But the years of developing these movements and discourses strengthened the voices and articulation of demands. Just as organisers, workers, and the precariat cannot foresee the moment when an inciting event loosens the levers of power they have been capacitating themselves to push, the actors of the past also could not see the future. The

[5] For the debate around the causes of this, see DeWitt (2010).

crisis this time will look different, requiring new political adaptations and responses, but history can provide valuable lessons.

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## About the Author

*Amanda Ciafone*
Amanda Ciafone is an Associate Professor in the Institute of Communications Research and Department of Media and Cinema Studies in the College of Media, and affiliate faculty of the Departments of History and the Unit for Criticism and Interpretive Theory at the University of Illinois Urbana-Champaign. She is writing a book on the political economy of older age in relation to media and technology in the twentieth and twenty-first centuries. Together with Dan Schiller and Yuezhi Zhao, she edits the Geopolitics of Information book series with University of Illinois Press.