### Plan – 1AC

#### The United States federal government should implement sectoral bargaining panels upon the request of either 5,000 workers or 10 percent of workers in a sector, with agreements subject upon ratification to mandatory contract extension on a worker’s request.

### Advantage 1 – Labor Share – 1AC

#### Falling labor share is fueling inequality and slow growth. Weak worker power under firm-level bargaining threatens long-term growth by accumulating wealth at the top.

Alex Domash 21 – Research Fellow, Mossavar-Rahmani Center for Business & Government, Harvard Kennedy School, “Returning Power to American Workers and Raising Wages: How Collective Bargaining Reform Can Help Restore America’s Middle Class,” 03/2021, https://www.hks.harvard.edu/sites/default/files/centers/cid/files/publications/CID\_Wiener\_Inequality%20Award%20Research/Policy%20Report\_Alex%20Domash%20(1-A).pdf

Since the early 1980s, labor’s share of national income has fallen in the United States, from an average of 64 percent between the postwar period to the early 1980s, to 58 percent in 2016 (Figure 1). The labor share represents the percentage of economic output that accrues to workers in the form of compensation – including wages, salaries, and benefits – and indicates the extent to which workers share in the economy’s output. A falling labor share implies a rising capital share, which means a greater portion of national income in the U.S. is being distributed to capital owners, rather than to workers. Since capital is heavily concentrated in the upper ends of the income distribution, this trend broadly reflects the rise in income inequality in the U.S.

Over the same period, the United States has seen a growing gap between worker productivity and workers’ wages. From 1979 to 2018, net productivity (output less depreciation per hour worked) rose by nearly 70 percent, while workers’ real hourly compensation increased by only 11 percent (Figure 2). The growing productivity-pay gap is directly related to the fall in the labor share, and suggests that workers are not being adequately compensated for the output that they have helped to produce. Over the last four decades, an increase in labor productivity has led to soaring corporate profits and the potential for substantial growth in wages, but these national income gains have largely accrued to capital and business owners, rather than trickling down to workers. Since 1980, real hourly compensation for the average American worker has grown by just 0.2 percent annually (Bivens et al. 2014).

Broad wage stagnation has directly undermined growth in living standards for middle class Americans. Among the bottom 90 percent of American households, labor income – including wages and wage-related income – comprises an average of 86 percent of total household income (compared to only 40 percent of total income for the top 10 percent of households). Sluggish wage growth thus contributes to stagnating living standards for the vast majority of American households (Gould, 2019). Capital income, on the other hand, is heavily skewed towards the top of the income distribution: the top 10 percent own about 70 percent of all capital, while the bottom 50 percent own less than 5 percent (Piketty, 2014). Taken together with the decline in the labor income share, these distributions can explain much of the growing income inequality in the United States – which is at its highest point since the Census Bureau began tracking the distribution of incomes in the 1960s (Block and Sachs, 2019).

The rise in inequality, fueled by sluggish wage growth, is a critical threat to economic growth, social mobility, and political equality in the United States. A wide-body of empirical evidence suggests that the current level of income inequality in the United States threatens both short-term aggregate demand and long-term economic growth. Since lower income households have a higher marginal propensity to consume than wealthier households, stagnant income growth for the middle class significantly reduces aggregate consumption, dampening economic growth (Rajan, 2011).. Business economists at Standard and Poor’s (S&P) even downgraded long-run U.S. growth prospects on account of high inequality (S&P Capital IQ, 2014). Inequality has also been shown to significantly reduce generation-to-generation economic mobility (Kopczuk et al, 2010; Corak, 2013; Chetty et al, 2014), a relationship which the late Alan Krueger called the “Great Gatsby Curve” (Krueger, 2012). This threat to social mobility even led current Treasury secretary Janet Yellen to question whether the rise in inequality is compatible with American values, when she declared in a 2014 speech, “I think it is appropriate to ask whether this trend is compatible with

“ I think it is appropriate to ask whether this trend [in wealth gains at the very top and stagnant living standards for the majority] is compatible with values rooted in our nation’s history, among them the high value Americans have traditionally placed on equality of opportunity ”

- Janet Yellen

values rooted in our nation’s history, among them the high value Americans have traditionally placed on equality of opportunity” (Yellen, 2014). Finally, rising inequality can have insidious effects on political power in America. Recent political science reveals how “the views of constituents in the bottom third of the income distribution receive no weight at all in the voting decisions of their Senators” (Druckman and Jacobs, 2015). The rise in income inequality thus presents an urgent threat to our democracy, and undermines the very political foundations of this country.

1. 2. Why has labor’s share of income decreased?

Five broad reasons have been proposed to explain the dual problems of stagnant real wages and the falling labor income share in recent decades (see Appendix 1 for a graphical representation of these five explanations):

Technological change: Advances in information technology and automation has caused a decline in the relative price of investment goods, increasing the elasticity of demand for labor and inducing firms to shift away from labor towards capital (Karabarbounis and Neiman, 2014; Autor and Salomons, 2018; Dao et al, 2017).

Increased globalization: An increase in trade and international outsourcing has led to offshoring of labor-intensive parts of the U.S. supply chain, reducing the elasticity of demand for labor and putting downward pressure on U.S. labor shares (Elsby et al, 2013; Abdih and Danninger, 2017).

Increased monopsony power: Increases in employer concentration and the proliferation of non-compete agreements (where employees are prevented from working for a firm’s competitors) has increased labor market frictions an

d reduced worker mobility. This has created a non-competitive market that allows firms some degree of wage-setting power – allowing wages to be set below the marginal product of labor. (Furman and Krueger, 2016; Benmelech et al, 2019).

Increased monopoly power: Higher barriers to entry and reduced market competition has led to high levels of inefficient market concentration, increasing aggregate firm markups well above the marginal cost of production (De Loecker et al, 2020; Covarrubias et al, 2019; Autor et al, 2020).

Decline in worker power: Institutional changes reducing unionization rates and workers’ collective bargaining power have led to a redistribution of economic rents (unearned profits above the marginal cost of production) from labor to capital (Levy and Temin, 2007; Bivens et al, 2018; Stansbury and Summers, 2020).

While economists disagree over the relative importance of each of these factors, there is general agreement that workers’ bargaining power has significantly eroded over the last four decades, and that this is responsible for at least part of the rise in inequality. Union membership – which has traditionally given workers the opportunity to bargain collectively with employers over wages, benefits, and workplace conditions – has drastically declined in recent decades. The percentage of workers covered by a union in the U.S. has fallen from nearly one third of the workforce in the late 1950s to only 10.5 percent in 2018, including a mere 6 percent of private sector workers (Bureau of Labor Statistics, 2018). In a recent paper, Lawrence Summers and Anna Stansbury declared that the decline in worker power “is one of the most important structural changes to have taken place in the U.S. economy in recent decades” (Stansbury and Summers, 2020). Studies have also shown that the decline in union membership has contributed directly to the sharp increase in income inequality. Bruce Western and Jake Rosenfeld found that the decline of organized labor in the U.S. could explain up to one third of the growth in inequality between 1973 and 2007 (Western and Rosenfeld, 2011).

The erosion of workers’ bargaining power in the U.S. can be attributed to three main factors: 1) institutional antagonism towards unions, 2) increases in shareholder power, and 3) structural changes in the economy. In recent decades, employers have become increasingly hostile to union organizing, and federal and state labor law amendments have made it increasingly difficult for workers to organize. Bivens et al (2017) find that when workers become interested in forming unions, 54 percent of employers threaten workers. Employees who engage in union organizing face a one in five chance of getting fired, and penalties for employers who violate workers’ rights during union drives have remained low and poorly enforced (Kleiner and Weil, 2010). Labor law rulings have also limited the ability of public unions to collect dues, sharply curbed union rights to picket and boycott, and have allowed states to expand so-called “right-to- work” laws, which make it more difficult for workers to form unions and have reduced state-level labor shares (Hazell, 2019). The second broad shift has been an increase in shareholder power and the rise of shareholder primacy, which has increased pressures on firms to cut labor costs, and has resulted in a large rise in outsourcing and subcontracting labor. Weil (2019) estimates that 19 percent of private sector workers are in industries where these “fissured” arrangements dominate – which makes it increasingly difficult for workers to organize. Finally, structural changes in the economy – including intensified globalization and the rise of automation – have increased the substitutability of workers. This has also contributed to a decline in workers’ bargaining power.

Trade unions in the U.S. have historically acted as an important way to bolster wages for lower- and middle-income families. Unions can increase wages both through their direct effect on union members, who earn an average union wage premium of around 15 percent (Rosenfeld, 2014) and through the “threat effect” of unionization for nonunion workers, which incentivizes nonunionized firms to offer better wages (Farber, 2005). A recent study on this “threat effect” estimates that nonunion private-sector men would have made about $3,172 more in 2015 if union density remained at 1979 levels (Denice and Rosenfeld, 2018). Harvard economist Richard Freeman and others have argued that the sharp decline in the number of people earning middle- class salaries over recent decades can be explained by the decline in union membership (Freeman et al, 2016).

But the overall impact of trade unions on productivity, employment, and firm investment is more mixed. Richard Freeman and James Medoff (1984) wrote the seminal paper on the economic impacts of unions, arguing that unions have “two faces”. One face of unions is to increase the collective voice of workers, which can increase worker productivity by lessening information asymmetries between employers and employees and reducing labor turnover. The other face of unions is the monopoly face, which can “raise wages above competitive levels” and lower worker productivity by creating “restrictive work practices.” Doucouliagos & Laroche (2003) conducted a meta-analysis of the effect of unions on productivity, and found a near-zero impact. The impact of trade unions on employment and firm investment is also mixed. Trade unions can increase employment if monopsony power is present and results in inefficiently low employment, or they may reduce employment if firms move up the labor-demand schedule and hire higher quality workers, or have less flexibility to adjust to macro-shocks (Blanchard and Wolfers, 2000). Some empirical evidence suggests that trade unions may decrease employment of low-skilled workers (Frandsen, 2012; Blanchard and Wolfers, 2000). Unions can also increase firm investment if they incentivize firms to increase investments in worker training (Acemoglu and Pischke, 1999), or reduce investment if union rent-seeking acts as a tax on firms’ return on investment (Connolly et al, 1986). Several empirical studies suggest that trade unions are likely to lower firm investment in physical and intangible capital and lead to slower growth (Addison and Hirsch, 1989; Lee and Mas, 2012).

The traditional trade union model may be ill-suited to deliver broad gains to workers in the 21st century economy. Intensified globalization and competition from abroad leaves unions with little bargaining power when negotiating with multinational employers, or when trying to transform conditions along a long supply chain. The proliferation of outsourcing, subcontracting, and gig employment also leaves a growing share of the workforce outside the reach of unions. On the political front, increasing employer opposition to unionization has made it exceedingly difficult for unions to secure a first contract, even when workers do vote for a union. When employers strongly oppose the organizing effort, only 10 percent of petitions for union election result in the union successfully securing an initial contract (Ferguson, 2008).

Given these economic and political changes, new innovations in labor law are needed.

1. 3. How can labor law address the decline in worker power?

The cornerstone of U.S. labor law, the National Labor Relations Act (NLRA), was passed in 1935 to safeguard workers’ right to organize and bargain collectively – but it fails to fulfill its objective in today’s economy. Even at the time of its adoption, the NLRA only extended collective bargaining rights to statutorily defined employees – which excluded domestic workers and agricultural laborers from the Act’s coverage. Today, that exclusion also restricts independent contractors and other gig-economy workers from having any collective bargaining rights. In total, roughly 20% of private-sector workers are denied collective bargaining rights (Block and Sachs, 2019). But even where workers’ bargaining rights are statutorily covered, the fundamental changes in the structure of the economy since the 1930s have left an ever-increasing number of American workers without any effective means to collectively bargain. In 2017, only 10 percent of all workers were covered by a collective bargaining agreement – the second lowest coverage rate across the OECD.

Given the shortcomings of the NLRA, a growing number of economists, legal scholars, advocates, and trade union federations have called for comprehensive federal labor law reform. Thomas Kochan, an expert in industrial relations at MIT, has argued that U.S. labor law “has been broken for so long” that we need a “fundamentally new structure of labor law” (Dyer, 2019). The Clean Slate for Worker Power initiative at Harvard Law School also released a 2020 report calling for a comprehensive overhaul of labor law, and Kate Andrias, a law professor at the University of Michigan, and David Madland, an economist at the Center for American Progress, have recently proposed completely modernizing labor law to satisfy workers’ needs in the twenty- first century.

This report will focus on one specific feature of U.S. labor law – the bargaining unit – and argue that the enterprise-based bargaining system used in the U.S. is fundamentally broken. While most industrial democracies empower unions to negotiate for workers on a sectoral or regional basis, U.S. labor law channels negotiations about wages and benefits to the firm level (Andrias, 2017). Section 159 of the NLRA states: “The unit appropriate for the purpose of collective bargaining shall be the employer unit, craft unit, plant unit, or subdivision thereof” (NLRA, 1935). Enterprise-based bargaining (sometimes referred to as firm-level bargaining or decentralized bargaining) has the following three structural defects:

Three structural defects of enterprise-based bargaining

1. High rates of exclusion – Enterprise bargaining leaves millions of workers without any collective bargaining coverage.

2. Unresponsive to the changing structure of the labor market – Enterprise bargaining is structurally incompatible with a labor market characterized by fissured employment relations and intensified globalization.

3. Incentivizes conflict in the workplace – Enterprise bargaining creates a competitive disadvantage for employers, which provides an incentive to fight unionization efforts.

Any reforms to federal labor law will undoubtedly face large political resistance in the U.S. Trade associations such as the U.S. Chamber of Commerce, and powerful corporations like Amazon, are steadfast in their commitment to undermine the rights of workers to organize and bargain collectively. Legislation to strengthen workers’ collective bargaining power is therefore sure to meet resistance, as has been evidenced by the recent political battle over the Protecting the Right to Organize (PRO) Act in Congress. But collective bargaining is a fundamental right of workers, enshrined in both domestic and international labor law, and is the cornerstone of a democratic and fair workplace. Our federal labor law therefore must be amended to uphold this basic right in a changing twenty-first century economy. Moreover, as this report will show, collective bargaining reform can be designed in a specific way such that workers can receive a greater share of economic output, while negative effects on firm productivity and profits are minimized.

#### The long-run economy is wage-led. Bargaining power is the only holistic solution to decline.

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Recent decades have been marked by two major and approximately general trends in advanced economies: the increase in income and, especially, wealth inequality within countries, and the long-run decline in labor productivity growth (secular stagnation). Despite the long preoccupation by economists working in the classical political economy (CPE henceforth) and post-Keynesian (PK) tradition with the role of distributional changes in fostering or hampering the growth process, the mainstream of the economics profession has not paid enough attention to questions related to income and wealth distribution for many decades. Certainly, Thomas Piketty's Capital in the XXI Century (Piketty 2014), which used a neoclassical framework to explain the process of rising inequality and stagnation, played a fundamental role in reviving the interest of mainstream economists in these issues. However, as argued by Petach and Tavani (2020), this approach can only explain the two trends under the assumptions of a high elasticity of substitution between capital and labor and an exogenous growth rate.

Focusing on the US economy, its recent economic history is distinguished by five interrelated stylized facts. First, a downward trend in the labor share has been observed nationally since the mid-1970s. As the relative constancy of the wage share in the longer run used to be seen as a stylized fact of economic growth (Kaldor 1961), the recent global trend of decline in wage shares has attracted a great deal of research attention. For instance, Karabarbounis and Neiman (2014) and Stockhammer (2017) show that the wage share has fallen significantly in advanced economies. Second, the share of wealth held by the top percentile has dramatically increased since the late 1970s. These trends in income and wealth inequality are illustrated in Figure 1.

[FIGURE 1 OMITTED]

Third, labor productivity growth in the U.S. has shown a slightly decreasing trend since the 1960s, although arguably still growing faster than wages—contributing to the pronounced decline in the wage share as depicted in Panel (a) of Figure 1. This trend is illustrated through the filtered data on labor productivity growth from 1960 to 2022 in Panel (a) of Figure 2. Fourth, as documented in Piketty (2014) and Piketty and Zucman (2014), the capital-income ratio has displayed an upward trend since the 1960s, as shown in Panel (b) of Figure 2.

[FIGURE 2 OMITTED]

Lastly, since the mid-1970s, the US economy has experienced a clear institutional shift, with economic power moving away from labor toward capital. This shift is evidenced by the consistent reduction in the bargaining power of workers, exemplified by the declining unionization rate of the labor force, as documented by Grossman and Oberfield (2022). Stansbury and Summers (2020) relate this reduction in labor power to lower wage levels and higher profit shares. Panel (a) of Figure 3 presents this declining trend in unionization rates since the end of the 1970s. Notably, this weakening of unionization is especially significant in the private sector, which constitutes the majority of U.S. employment.1 Concurrently, there has been a significant increase in the market power of firms, observed through rising market concentration since the early 1980s. De Loecker et al. (2020) describe the evolution of market power based on firm-level data for the US economy, indicating that aggregate markups began to rise from 21% above marginal cost in 1980 to 61% currently.2 Autor et al. (2020) link the rise of “superstar firms”, responsible for the largest increases in the average markup rates, to the decline in the labor share in the U.S. Panel (b) of Figure 3 indicates this increasing trend on the average market power of firms using the aggregate average markup of US publicly traded firms.

[FIGURE 3 OMITTED]

Despite some notable exceptions (Taylor et al. 2019; Petach and Tavani 2020; Ederer and Rehm 2020; Cruz and Tavani 2023), most theoretical frameworks do not generally provide a clear link between a rising capital-income ratio, a falling labor share, and growing wealth inequality, and to what extent these distributional changes impact the reduction in labor productivity growth and the growth rate of the economy. This limitation is even more pronounced considering the fundamental role of insufficient aggregate demand as a driving force behind the phenomenon of secular stagnation in advanced economies. This paper aims to bridge these gaps by proposing an alternative theoretical framework to better organize and interpret the stylized facts outlined previously.

Drawing both upon the CPE and the neo-Kaleckian traditions, we develop a formal model that not only addresses the five stylized facts detailed earlier but also integrates the crucial role of insufficient aggregate demand to elucidate the dynamics of secular stagnation, income and wealth inequality. Although demand-led models have been previously used to discuss the process of wealth accumulation and income distribution in recent contributions—for instance in Kumar et al. (2018), Ederer and Rehm (2020), Taylor et al. (2019) and Stamegna (2023)—to our knowledge this paper is the first to structure a condensed explanation of trends in distributive, technological, and labor bargaining power that affect the US economy in past decades.

The second contribution of this paper is a nuanced examination of the institutional changes that have unfolded since the late 1970s, changes we argue are central to understanding the recent history of the U.S. economy. Petach and Tavani (2020) and Cruz and Tavani (2023), following the induced innovation hypothesis by Kennedy (1964), link factor-augmenting technologies and factor shares and consider the effect of changes in a “catch-all” institutional variable affecting the labor share in the long run. We develop an alternative, plausible logic for the determination of a similar institutional or policy parameter within the model, that has the advantage of indicating more clearly the connection of this variable with the functional distribution of income and the dynamics of the labor market. Our formulation draws on the structuralist tradition, modeling wage- and price-setting behaviors as manifestations of the conflicting claims of workers and firms over the social product (Rowthorn 1977; Dutt 1987; Taylor 1985). Importantly, the reduced form dynamics of such conflicting claims deliver a distributive curve that links the labor share of income to aggregate demand (Barbosa-Filho and Taylor 2006).

Our results are as follows. Institutional or policy changes that, at the same time, deteriorated workers' bargaining power and increased firms' market power have negatively impacted the wage share. This, in turn, may have positively affected economic activity and accumulation in the short term if the demand regime on the economy is profit-led, which would have reinforced the initial negative shock. However, the direct relationship between the labor income share and the rate of labor-augmenting technological progress implies that the decline in labor power will produce a reduction in the natural growth rate of the economy, which is linked to labor productivity growth.3 In other words, the economy is wage-led in the long run because of supply forces, namely the wage-led nature of labor productivity growth. For balanced growth to be restored, an increase in the capital-income—a decline in the income-capital—ratio is necessary. In addition, we analyze in detail the evolution of wealth distribution, whose Pasinetti (1962) dynamics reveals a long-term inverse relationship between the wage share and the capitalist (top, in the data) wealth share, as well as between the top wealth share and the rate of capacity utilization.

#### The plan solves:

1. **Workplace collaboration. Sectoral bargaining increases productivity by replacing adversarial relationships with common interest.**

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American Troubles

Not only does broad-based bargaining lead to greater coverage, and thus higher wages for most workers, as well as less economic inequality and smaller pay gaps, these gains do not cause significant economic harm. Indeed, the more unions are able to represent all workers, the more positive their overall economic impact is likely to be.

There are a number of theoretical reasons to expect that higher-level bargaining would increase productivity and thus help the overall economy. First, broadbased bargaining would raise wages for more workers, and higher wages help reduce turnover and encourage innovation.96 Moreover, similar pay for similar work—a key goal of higher-level bargaining—enables a more efficient allocation of resources, which speeds up the movement of labor and capital from low to high-productivity activities.97 Put another way, similar pay for similar work forces companies to compete based on productivity improvements, not squeezing workers. By making the rationale for pay increases clearer and more transparent—such as by identifying measurable skills—higher-level bargaining may be particularly motivational for workers who seek to advance their careers and can reduce discrimination even more than firm-level bargaining. Further, broad-based bargaining also creates an opportunity for workplace organizations like works councils, which provide a forum to discuss work processes and have been shown to increase productivity.98 In addition, by elevating some conflict about pay scales to outside the firm, higher-level collective bargaining can enable greater collaboration in the workplace.99 Collaboration between workers and management is often key to improving production processes. Finally, broad-based bargaining can also promote worker training by minimizing the employees’ financial incentives to leave firms once they are trained and creating an opportunity for well-designed training systems.100 These latter two—reducing conflict and promoting training—merit additional explanation.

One of the most important factors in determining the economic impact of unions is the quality of the relationship between labor and management— whether it is collaborative or conflictual.101 Unfortunately, the US system is geared toward producing more conflict than it needs to. The highly conflictual and deeply flawed union election process is one important reason why the US labor relations system is so conflictual. But even more critical is that enterprise bargaining creates additional incentives for managers to oppose unions and can push unions and managers to act in ways that may not be in the best interests of the firm or all its workers.

From the management perspective, enterprise bargaining means that if a firm or unit in a firm is unionized, employers will face higher labor costs than their nonunion competitors. Moreover, managers have to negotiate over the way work is conducted in this unit, while their competitors will not. This makes many managers view unions as a threat to their company and ability to manage and feel that nonunion firms have cost and discretionary advantages. Given these incentives and beliefs, it is not surprising that many US firms vigorously oppose their workers unionizing and retain an adversarial approach if their workers do unionize.102

From the worker perspective, enterprise bargaining means that although unions may care about a broad group of workers, the law pushes them to bargain for only the particular group of workers they represent rather than negotiating to improve conditions for all workers in an industry or a region.103 The ability of unions to represent a broad group of workers is further limited because current law prevents many kinds of workers from joining unions and allows employers to evade unions by shifting the form of their business

When unions had high membership rates, they could indirectly raise wages for workers outside a particular unit, but, as they weaken, they have far less ability to do so. Now every wage increase or benefit improvement that a small group of unionized workers in a particular unit in a particular firm achieves makes them more and more different from the nonunion workers around them. This means that unions must worry constantly that management will seek other, cheaper workers to work for them. As a result, unions have incentives to create rules that ensure that work is done by their members rather than in the manner that makes the most economic sense, as well as to approach management in a defensive posture, fearful that business decisions have nefarious motivations.

Of course, there are many exceptions to this negative picture. High-road productive labor-management relationships are clearly possible in our current system—think Costco, Southwest Airlines, and Kaiser Permanente, among many others.104 But they are the exception, not the rule, because the incentives are stacked against collaborative relationships.

#### Wage structure. Taking wages out of competition sends capital to more productive companies and increases firm innovation.

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In its influential state-of-the-art study, the OECD (2019a) demonstrates that countries with multilevel bargaining systems (varying by the type and degree of their coordination) have experienced stronger labour market performance than countries with decentralized bargaining in recent years. Both the unemployment rate and the employment rate register stronger performance, especially for countries with strongly coordinated multilevel systems.

Co-ordinated bargaining systems are associated with higher employment and lower unemployment relative to fully decentralised systems […]. This is particularly the case for predominantly centralised systems, while for organised decentralised systems the result on unemployment is somewhat smaller and less robust. Centralised but weakly co-ordinated systems and largely decentralised systems hold an intermediate position, with better employment outcomes than in fully decentralised ones but similar unemployment outcomes. (OECD 2019a, 112).

This result of better labour market performance is confirmed by other studies that analyse similar or different groups of countries (for example, Brandl 2023a; Eurofound 2023; Visser 2013). Moreover, these indicators are inclusive of all groups of workers, which refutes claims made in earlier studies that strong unions necessarily advantage “insiders” at the expense of “outsiders” (Lindbeck and Snower 2001). The OECD data show that countries with multilevel bargaining systems are also associated with better labour market outcomes for relatively disadvantaged workforce groups. Figure 2 shows that the unemployment rates of youth, women and low-skilled workers are either significantly lower than, or no different from, countries with decentralized bargaining.

2.3.  Economic performance

There is a long-standing body of theoretical and empirical work that focuses on the economic effects of different collective bargaining structures. Ideas and evidence have shifted over time from positive support for more centralized bargaining systems in the 1970s to a questioning of the macroeconomic performance effects of multilevel systems in the 1980s, followed by a divergence of viewpoints in the early 2000s (for a review, see Grimshaw and Hayter 2020). Today, there is near consensus that bargaining systems have limited influence on macroeconomic performance (compared to capital investment and systems for innovation and skill development, say), but positive effects on firm and sectoral performance, including productivity and innovation (Brandl and Braakmann 2021; Doucouliagos, Freeman and Laroche 2017; Grimshaw, Koukiadaki and Tavora 2017). The OECD’s view, consistent over the last two decades, is illustrative of the mainstream viewpoint regarding macro-level effects: “The overall fragility of the evidence linking collective bargaining to macroeconomic performance suggest[s] that great caution should be exercised when attempting to draw guidance for making policy choices from this research” (OECD 2004, 133).

In their comprehensive European study of inter-country productivity effects, Brandl and Braakmann (2021) find that multilevel bargaining is a necessary condition for delivering productivity growth. They show that:

(i) Enterprise bargaining and coordinated multilevel bargaining both generate higher productivity growth than either absent collective bargaining or uncoordinated bargaining; and

(ii) Strongly coordinated multilevel systems have superior productivity effects. Three types of vertically coordinated systems are especially effective: enterprise-sector systems, sector-national systems and enterprise-sectornational systems.

The OECD’s (2019a) analysis of firm-level productivity effects confirms the classic study by Freeman and Medoff (1984), namely that union presence (a key determinant of collective bargaining) tends to impact positively on organizational productivity by reducing voluntary worker turnover and increasing tenure and firm efficiency. Evidence for Latin America is also mostly supportive. Drawing on World Bank Enterprise Survey data, Rios-Avila (2014) finds that the impact of union presence on firm productivity in the manufacturing sector is positive in Chile, Mexico, Panama and Uruguay, but neutral in Bolivia and negative in Argentina. The most recent meta-analysis, covering 111 studies on union and productivity levels (mostly from the United States and the United Kingdom), found that, overall, unions have a small but positive effect on productivity (Doucouliagos, Freeman and Laroche 2017). Except in the case of the United Kingdom, the findings “reject the neoclassical economics view that unions are invariably harmful to productivity” (ibid., 70). A summary of selected empirical results from this research shows that:

(i) Where unions are autonomous, organized at industry level and nonparochial (that is, not focused on defending job territories), they are more likely to have positive productivity effects;

(ii) The presence of multiple unions at establishment level may be adversely associated with productivity levels;

(iii) Countries with sectoral bargaining structures display a positive relationship between union strength and productivity growth, while this relationship is neutral for countries with enterprise-level bargaining.

Sectoral bargaining can be particularly beneficial for companies that are technology leaders. As less innovative and unproductive firms are pushed out of the market by standardized sectoral wages, more innovative firms can capture their market share. These positive incentives for management to compete on organizational and/or technological innovations, rather than labour costs, are beneficial for the long-run productivity and competitiveness of industries and countries (see, for example, Bloom, Sadun and Van Reenen 2017; Doucouliagos and Laroche 2003; Scarpetta and Tressel 2004; Wachsen and Blind 2016; Willman 1986).

#### Sectoral bargaining is a macroeconomic stabilizer. Coordinated wage-setting prices in broader conditions and responds appropriately to downturn.

Alex Domash 21, Research Fellow, Mossavar-Rahmani Center for Business & Government, Harvard Kennedy School, “Returning Power to American Workers and Raising Wages: How Collective Bargaining Reform Can Help Restore America’s Middle Class,” 03/2021, https://www.hks.harvard.edu/sites/default/files/centers/cid/files/publications/CID\_Wiener\_Inequality%20Award%20Research/Policy%20Report\_Alex%20Domash%20(1-A).pdf. //EP

SECTION 2: COLLECTIVE BARGAINING SYSTEMS IN OECD COUNTRIES

2. 1. The role of collective bargaining

Collective bargaining is the process in which working people negotiate contracts with their employers to determine the terms of their employment, including pay and benefits (AFL- CIO, 2021). It is a key labor right that gives workers a voice in the workplace and ensures a more equitable and inclusive labor market. The right to collective bargaining is recognized by international human rights conventions, and is one of the International Labor Organization’s eight fundamental conventions that comprise the Declaration on Fundamental Principles and Rights at Work.

Three key functions of collective bargaining for workers are: 1) ensuring that economic profits are shared, 2) managing social conflict, and 3) guaranteeing adequate workplace conditions (OECD, 2019). Collective bargaining can directly affect the distribution of product market rents between labor and capital, allowing workers to lay claim to a fairer share of the profits they helped create. Cross-country evidence offers support for this theory: OECD countries with higher rates of collective bargaining coverage also have higher labor income shares (Figure 4). Collective bargaining also allows workers to voice workplace concerns directly to management, which can lead to more stable labor relations, overcome information asymmetries, and possibly increase workers’ job-satisfaction and motivation. Finally, collective bargaining agreements usually lead to increased worker benefits beyond wages, including job-security, increased workplace safety, and greater access to skill trainings.

Collective bargaining can also help correct for market failures in the economy, including asymmetric information between workers and employers, and monopsony power arising from job-search frictions. Recent research has showed that dynamic monopsony power – employer’s power to set wages below competitive levels due to search frictions such as imperfect information and other constraints on job mobility – is widespread across the U.S. labor market (Webber, 2015). In the presence of monopsony power, collective bargaining can act as a countervailing power to restore wages to a competitive equilibrium.

But economic theory cautions that some collective bargaining arrangements can introduce market distortions that hinder economic performance. One influential model of collective bargaining, the “right-to-manage” model, makes a distinction between “insiders” and “outsiders” (Leontief, 1946). According to this model, workers bargain exclusively over their own wages, and therefore set the wage above market equilibrium, which helps workers covered by collective bargaining agreements at the expense of lower employment opportunities for job-seekers outside of the firm. Some collective bargaining agreements also have the additional downside of reducing the flexibility of firms to respond to macroeconomic and productivity shocks (OECD, 2019).

2. 2. Trends in collective bargaining across OECD countries

In 2018, about 82 million workers were members of trade unions in OECD countries, and about 160 million are covered by collective bargaining agreements (OECD, 2019). As shown in Figure 5 below, there is considerable heterogeneity across OECD countries in both collective bargaining coverage and union density, as well as in the gap between the two. In the United States in 2017, both bargaining coverage and union density stood at close to 11%. In France, on the hand, union density was at 11%, but collective bargaining coverage was at 98%. The discrepancy between these two numbers in France (and other countries) arises due to extending agreements concluded at either the national, regional, sectoral, occupational, of firm level to non-union members.

Since the 1980s, however, collective bargaining systems have weakened around the world. The share of workers in OECD countries covered by a collective agreement has dropped from 45% in 1980 to 30% in 2017. In the United States, the share has fallen from 25% to 11% over the same time period. Union density has seen a parallel decline across OECD countries, from 32% in 1980 (17% in the United States) to 15% in 2017 (10% in the United States). These trends are shown in Figures 6 and 7 below. While the drivers of the decline in bargaining coverage are multifaceted, much of it can be explained by 1) policy reforms in industrialized countries decentralizing collective bargaining arrangements, 2) declines in union density due to institutional pressures, and 3) the rise of non-standard employment arrangements.

Collective bargaining coverage declined the most in countries where significant reforms took place to decentralize collective bargaining (shifting the bargaining unit to the firm-level). In Central and Eastern European countries, the collapse of old regimes led to a drastic shift from centralized (bargaining at the national or regional level) to decentralized collective bargaining (OECD, 2019). In Hungary, Czech Republic, and Poland, these collective bargaining reforms resulted in drops in collective bargaining coverage of more than 50 percent since 1990 (Figure 8). New Zealand, the United Kingdom, and Australia all implemented reforms to decentralize collective bargaining, which corresponded to reductions in collective bargaining coverage of 73 percent, 64 percent, and 57 percent, respectively.

Collective bargaining coverage remained high and stable only in countries where multi- employer bargaining (also called broad-based bargaining) dominates (Figure 9). In countries where broad-based bargaining happens (bargaining either at the sectoral, regional, or national level), collective bargaining coverage is uniformly higher than in countries with predominantly enterprise bargaining. In many Southern European countries (such as France, Portugal, and Spain), these high rates of collective bargaining coverage come even when union membership remains very low (at comparable levels to the United States).

2. 3. Features of collective bargaining systems

Collective bargaining systems across OECD countries have four principle components, summarized in the box below (modified from OECD (2019): “Negotiating our way up”):

Four main features of collective bargaining systems

1. Level of bargaining – does collective bargaining take place at the firm, sectoral, or national level?

2. Amount of flexibility – how much room is there for firms to derogate from higher-level agreements or opt-out of bargaining agreements in case of economic hardship?

3. Extent of coordination – is there synchronization between different bargaining units (e.g. do sectors coordinate with each other on wage targets in sectoral systems)?

4. Enforcement capacity – how likely is punishment if a party deviats from the terms set in collective agreements?

While broad-based bargaining agreements are common in nearly all continental European countries, there is significant variation in how, and to what extent, firm-level agreements supplement higher-level agreements. In some countries, such as the Scandinavian countries, sectoral agreements only define broad frameworks, but leave significant scope for bargaining at the firm level. In other countries, such as Germany and Austria, sectoral agreements play an important role, but still allow firms to opt-out of certain agreements and renegotiate at the firm- level. In a third set of countries, such as Italy and Slovenia, sectoral agreements largely set the rules, and don’t allow firms much flexibility (OECD, 2019).

The majority of OECD countries (not including the United States) use some combination of firm-level and higher-level agreements to extend collective bargaining coverage to workers (Figure 10). Two key components that influence how sectoral and firm-level agreements interact are: 1) the favorability principle, and 2) derogations. The favorability principle, which is common in most continental European countries, states that lower-level agreements can only improve higher-level agreements. The second key component, derogations, allow firms to opt-out of higher- level conditions, either through general opening clauses, or temporary opt-out clauses in the case of an economic hardship. Germany effectively used temporary opt-out clauses to support firms during the 2008-2009 financial crisis (Dustmann et al, 2014).

Economic theory suggests that there is an important trade-off between flexibility and coordination among these different types of bargaining systems. In an enterprise bargaining system (e.g. the United States system), there is less wage rigidity at the firm-level, which gives firms more flexibility to respond to firm-specific economic shocks and more autonomy to link worker performance/productivity to wages. In a sectoral or centralized bargaining system, theory suggests that there is a weaker link between productivity and wages, but more macroeconomic resiliency, since wage-setters can recognize broader national interests, and entire sectors can have a coordinated response in the aftermath of an economic downturn.

The next section seeks to test this theory by empirically answering the following question: to what extent do collective bargaining systems explain the variation in labor shares, wages and labor market performance across OECD countries?

SECTION 3: EFFECT OF COLLECTIVE BARGAINING ON LABOR MARKET OUTCOMES

Key Findings

• Enterprise bargaining systems lead to much lower rates of collective bargaining coverage than broad-based bargaining systems.

• Sectoral bargaining systems are associated with significantly higher labor income shares and higher wage growth than enterprise based bargaining systems.

• Sectoral bargaining systems are also associated with higher employment, lower unemployment, and higher job quality than enterprise bargaining systems.

3. 1. Labor income shares and wage growth across the OECD

Since the 1980s, labor’s share of national income has steadily decreased across OECD countries (Figure 11). The average labor income share across all OECD countries fell from 64 percent in 1980 to 60 percent in 2017. While most OECD countries have experienced this downward trend, some countries – such as France and Belgium – have maintained a relatively stable labor share in the last 30 years.

Over the past two decades in particular, the United States has seen one of the sharpest declines among all OECD countries in the labor income share (Figure 12). Many of the countries that experienced gains in the labor share since 2000 – including Norway, Finland, Sweden, and Italy – have among the highest rates of collective bargaining in the OECD. The United States has also seen a precipitous decrease in the labor share in sectors where “fissuring” predominates (Figure 13). Between 2000 and 2015, fissured sectors (which are characterized by high levels of sub-contracting and outsourcing) saw an 18 percent decline in the labor share. This finding aligns with other empirical evidence which has shown that the fissuring of the workplace leads to lower wages and weaker bargaining power for workers (Weil, 2019).

Measuring labor’s share of national income

Although labor’s income share may sound straightforward to measure in theory, there are several complications thar arise in practice.

The labor income share is a ratio of total labor compensation paid to employees divided by national income. Two adjustments are required for the computation of the denominator – the income aggregate – subject to data availability. First, taxes on production and imports need to be removed from gross value added, and second consumption of fixed capital needs to be subtracted from the value added to obtain a measure that is net of depreciation. The numerator – total labor compensation paid to employees – must also be adjusted to account for self-employment income (Guerriero, 2019).

Following one approach in the literature (Guscina 2006; Izyumov and Vahaly 2015), we make these adjustments and calculate the labor income share as follows:

𝐴𝑑𝑗𝑢𝑠𝑡𝑒𝑑 𝑙𝑎𝑏𝑜𝑟 𝑖𝑛𝑐𝑜𝑚𝑒 𝑠ℎ𝑎𝑟𝑒 = 𝑐𝑜𝑚𝑝𝑒𝑛𝑠𝑎𝑡𝑖𝑜𝑛 𝑜𝑓 𝑒𝑚𝑝𝑙𝑜𝑦𝑒𝑒𝑠 + (2/3) 𝑚𝑖𝑥𝑒𝑑 𝑖𝑛𝑐𝑜𝑚𝑒 / 𝑣𝑎𝑙𝑢𝑒 𝑎𝑑𝑑𝑒𝑑 − 𝑖𝑛𝑑𝑖𝑟𝑒𝑐𝑡 𝑡𝑎𝑥𝑒𝑠 − 𝑓𝑖𝑥𝑒𝑑 𝑐𝑎𝑝𝑖𝑡𝑎𝑙

This adjustment imputes two-thirds of mixed income from self employment to labor income, and the rest to capital income, which derives from the assumption that labor income represents around two-thirds of the overall economy’s income. Self-employment income is therefore expected to be composed of a similar combination.

Since 2000, the United States has also seen one of the slowest growth rates across the OECD in real labor compensation per capita (Figure 14). 2 Between 2000 and 2017, total cumulative growth in real annual compensation per capita in the United States was only 6 percent, compared to an OECD average of 22 percent. The only countries that saw less overall growth in real labor compensation were Portugal, Greece, and Italy. Real labor compensation per capita is a good proxy for workers’ living standards – which provides more evidence of the stagnating living standards for the middle class in the United States.

3. 2. Creating a taxonomy of collective bargaining systems

To better understand the role of collective bargaining systems on inequality, wages, and economic performance, we create a taxonomy of collective bargaining systems based on the features outlined in the preceding section. The taxonomy takes into account the level of bargaining, the degree of coordination between bargaining units, and the amount of flexibility firms have in the wage-setting process. This approach is similar to the one taken in OECD (2019), but creates a more aggregated taxonomy to increase the number of observations in each group. The database on Institutional Characteristics of Trade Unions, Wage Setting, State Intervention and Social Pacts (ICTWSS) is used to create this taxonomy.

The following are the four classifications of collective bargaining systems:

• Enterprise – Wage bargaining is fragmented and takes place at the local or company level, with limited government intervention and limited coordination across firms. In 2017 this included: Canada, Czech Republic, Estonia, Greece, Hungary, Japan, Korea, Latvia, Lithuania, Luxembourg, New Zealand, Poland, Slovak Republic, United Kingdom, and the United States.

• Sectoral with firm-level flexibility – Wage bargaining takes place at the sector or industry level, or alternates between sector and company bargaining; wage clauses have some flexibility for firms to specify, or deviate from, sectoral agreements. Some degree of coordination is present during the wage setting process. In 2017 this included: Australia, Austria, Denmark, France, Germany, Iceland, Israel, Italy, Netherlands, Norway, Portugal, Slovenia, and Sweden.

• Sectoral with strong coordination – Wage bargaining takes place at the sector or industry level; coordination is present during wage setting through pattern bargaining, intra-associational or inter-associational coordination, or government-sponsored bargaining like pacts; there is limited scope for firms to derogate or opt-out of sectoral agreements. In 2017 this included: Iceland, the Netherlands, Spain, and Switzerland.

• Predominantly centralized – Wage bargaining takes place predominantly at the central or cross- industry level, or alternates between central and industry bargaining; sectors or companies have the ability to specify/deviate from higher-level agreements; some degree of coordination is present between bargaining units. In 2017 this included: Belgium and Finland.

The bargaining system for each OECD country is classified according to this taxonomy in each year over the period 1980-2017. In total, we use 32 countries in our analysis.3

3. 3. Relationship between collective bargaining and labor income shares

Since the 1980s, there has been a systematic shift across OECD countries to more decentralized and flexible systems (Figure 15). In 1980, 18 OECD countries had either predominantly centralized bargaining systems or predominantly sectoral bargaining systems with strong coordination between bargaining units. By 2017, only 6 countries had bargaining arrangements under these two classifications. Enterprise bargaining, on the other hand, has become much more common since 1980: 16 countries use predominantly enterprise-based bargaining systems (as of 2017), compared to only 9 countries in 1980.

Between 1980 and 2017, countries with enterprise-based bargaining saw the largest decline in bargaining coverage (Figure 16), the largest drop in labor income shares (Figure 17), and among the slowest real compensation growth per worker (Figure 18).4 Countries with enterprise bargaining systems had a 56 percent decrease in average collective bargaining coverage over this time period, from an average coverage of 52 percent in 1980 to 23 percent. On the other hand, the bargaining coverage in countries with broad-based bargaining (regardless of specific classification) was relatively stable over this period. Labor income shares are also the lowest in countries with enterprise bargaining, and saw the largest decline since 1980. The average labor share in countries with enterprise bargaining decreased from 63 percent in 1980 to 56 percent in 2017. Average compensation growth in countries with enterprise bargaining systems also lagged behind compensation growth in countries with predominantly centralized systems or sectoral systems with firm-level flexibility – though it did exceed the rate of growth in countries with coordinated sectoral systems.

When countries reformed their bargaining systems from centralized or sectoral bargaining, to predominantly enterprise-based bargaining, labor’s share of income saw a significant decline. Four countries in our sample underwent significant collective bargaining reforms since 1990 that shifted collective bargaining to the enterprise level: Czech Republic, Greece, Ireland, and the United Kingdom. We exploit these changes to show what happened to the labor share after each country underwent their bargaining reform. Figures 19-22 below plot the average labor income share in each country, and code each year observation according to the type of bargaining system. The dashed red lines show that there is a clear trend break when each of the four countries underwent collective bargaining reform to decentralize their systems. These graphs should not be interpreted causally, as there were likely many other macroeconomic factors that may have also influenced the labor share.

3. 4. Empirical estimates for effect of collective bargaining on labor market performance

Setting up the model

The empirical analysis exploits time-variations in the classifications of collective bargaining systems within countries in order to estimate the effect of bargaining arrangements on labor shares, wages, and other labor market outcomes. The explanatory variable of interest is a country’s bargaining classification in each year, and the main outcomes of interest are: 1) adjusted labor income shares, 2) growth in total labor compensation per capita, and 3) other labor market outcomes, which include employment rates, unemployment rates, labor productivity, workers’ job satisfaction, and worker tenure. For most regressions, country and year fixed effects are used to control for time-trends and unobserved differences across countries. The analysis is conducted on 27 countries between 1985 – 2017.5

The box below provides a summary of the estimation approach for the first outcome of interest, adjusted labor income shares.

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Empirical approach to estimate the effect of collective bargaining on labor income shares The baseline regression to estimate the effect of collective bargaining systems on labor income share is as follows: And the variables are defined as: • 𝐿𝐼𝑆𝑐𝑡 is the country’s adjusted labor income share in country c in year t • 𝐵𝑎𝑟𝑔\_𝑇𝑦𝑝𝑒𝑐𝑡 is the bargaining taxonomy in country c in year t • 𝐵𝑎𝑟𝑔\_𝑇𝑦𝑝𝑒𝑐𝑡−1 is the bargaining taxonomy in country c in year t - 1 • 𝐵𝑎𝑟𝑔\_𝑇𝑦𝑝𝑒𝑐𝑡−2 is the bargaining taxonomy in country c in year t - 2 • 𝛼𝑐𝑡 represents country and year fixed effects • 𝛾𝑐𝑡 is a vector of country-year controls, including: • Industrial composition controls for 13 four-digit sectors • Macroeconomic controls – Composite leading indicators, inflation rate, current account balance as % of GDP, export orientation (domestic value added in foreign final demand as a share of total value added) • Institutional controls – tax wedges, product market regulations, employment protection regulations, minimum wage to medium wage ratio, gross unemployment insurance replacements rates • Demographic controls – log of average years of education, female employment share The outcome of interest is the three-year cumulative effect of the bargaining system on the labor income share, which is why we include two-year lags in the model. The coefficient of interest is the sum of 𝛽1 + 𝛽2 + 𝛽3 . For each bargaining taxonomy (e.g. sectoral with firm-level flexibility, sectoral with strong coordination, and predominantly centralized), the coefficients 𝛽1 + 𝛽2 + 𝛽3 are measured relative to enterprise bargaining. For example, if 𝛽1 + 𝛽2 + 𝛽3 > 0 for the bargaining classification “sectoral with firm-level flexibility”, then we can say that “sectoral with firm-level flexibility” systems are associated with a higher labor income shares than enterprise-based systems. We perform a Wald test to test whether 𝛽1 + 𝛽2 + 𝛽3 > 0 for each bargaining type. We run three model specifications for robustness: 1) with no fixed effects, 2) with only time fixed effects, and 3) with time and country fixed effects. The data for this analysis comes from a combination of sources including: 1) Database on Institutional Characteristics of Trade Unions, Wage Setting, State Intervention and Social Pacts (ICTWSS), 2) UN National Accounts Database, 3) OECD Employment dataset, 4) OECD Labor dataset, 5) OECD Structural Analysis dataset, and 6) Barro-Lee Educational Attainment Data.

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Sectoral bargaining systems are associated with significantly higher labor income shares than enterprise bargaining systems. Sectoral bargaining systems with firm-level flexibility and sectoral bargaining systems with strong coordination both outperform enterprise systems. Countries with sectoral systems, on average, have approximately a 4 percentage point higher labor income share (Table 1, Appendix 3). This result is strongly statistically significant, and robust across all four regression models. One possible explanation for this finding is that sectoral bargaining systems allow for more coordination across firms, which makes it more likely for workers to successfully bargain sector-wide wage increases in response to sector-wide productivity increases. The regression results are included in Table 1 of Appendix 3, and shown graphically in Figure 23.

Sectoral bargaining systems are also associated with significantly higher growth in real labor compensation per capita compared to enterprise bargaining systems. Countries with sectoral systems with firm-level flexibility experience about 3 percent more growth in real labor compensation over the course of 3 years, relative to countries with enterprise bargaining systems (Table 1, Appendix 3). Countries with sectoral systems with strong coordination also experience about 2 percent more growth than countries with enterprise bargaining systems. These results are also robust across different model specifications. This suggests that labor’s share of income is higher with sectoral agreements not because of lower labor productivity, but rather because of higher wage growth (the labor share is essentially employee compensation divided by GDP, and thus can increase either because relative compensation increases or GDP decreases). The results are shown graphically in Figure 23.

Enterprise bargaining systems are associated with lower employment and higher unemployment rates than sectoral and centralized systems. The overall employment rate is about 3 to 4 percentage points lower in enterprise systems than in sectoral and centralized systems (Table 2, Appendix 3). Youth and female employment are also much lower in enterprise systems: female employment tends is an average of 5 percentage points lower than in broad-based bargaining systems, while youth employment is a staggering 13-14 percentage points lower. When country fixed effects are included, which looks at what happens when countries change their bargaining systems to enterprise-based, we also see a large decrease in employment. With country fixed effects, sectoral bargaining systems are associated with a 2 percentage point higher overall employment rate, and a 2 percentage point lower overall unemployment rate (Table 3, Appendix 3). These results suggest that transitioning to higher-level bargaining (for example, at the sectoral level) is likely to lead to higher employment, and is unlikely to lead to an increase in unemployment. The fact that youth and low-skill workers also have higher employment rates suggests that sectoral bargaining can overcome the “insider” vs “outsider” dilemma of collective bargaining – with sectoral agreements, traditional “outsiders” (lower-skilled workers) are not negatively affected via lower employment opportunities. Figures 24 and 25 summarize these findings.

Sectoral bargaining systems are also associated with significantly higher job satisfaction. Workers in countries where broad-based bargaining dominates (sectoral or centralized bargaining) score between 6 and 10 percentage points higher on the OECD’s earnings quality index (Table 4, Appendix 3). This index is an important component of job quality, and captures the extent to which earnings contribute to workers’ well-being, both in terms of average earnings and in terms of their distribution across the workforce. Workers also report higher labor market security in broad-based systems, which captures the aspects of economic security related to the risk of job loss. These results are summarized in Figure 26.

#### Economic equality compounds over time. It causes elite capture and prevents investments in the public good. Only inclusive institutions tackle existential risks to society - climate change, nuclear war, misaligned AI, and bioengineered viruses.

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Short-term effects

We now assess the direct, static effects of income inequality on aggregate wellbeing. To this end, we limit the effects we consider under Instrumentalism to the next 50 years.

So how do income and income inequality affect well-being in the short term? Drawing on recent work in economics and psychology, we can go beyond speculation (Kahneman and Krueger, 2006).

More than 40 years ago, Richard Easterlin observed a strange trend: household income predicts cross-sectional differences in life satisfaction within countries, but average national life satisfaction did not seem to rise when a country grows wealthier over time (Easterlin, 1974). Generating much debate, some have tried to explain the so-called Easterlin Paradox, for example by pointing to relative income and social status: because we prefer earning more relative to others, life satisfaction increases cross-sectionally but not intertemporally (Clark et al., 2008; Ferrer-i-Carbonell, 2005). However, others have challenged Easterlin on the data. With more and better data it seems more likely that there is a logarithmic and statistically significant relationship between life satisfaction and GDP over time (Sacks et al., 2012; Stevenson and Wolfers, 2008, 2013).9

For our purposes, what matters is that most authors agree that (1) the cross-person within-country relationship between life satisfaction and income is statistically significant and logarithmic and that (2) the cross-country relationship between life satisfaction and income is statistically significant and logarithmic. As we here consider the short term only, that is enough to support the decreasing marginal utility effect.10 Based on cross-sectional data, Stevenson and Wolfers find that a doubling of annual household income leads to an increase in life satisfaction of around 0.3 points (Stevenson and Wolfers, 2013: 14). But this holds for any doubling (up to a potential upper bound): increasing Alice's income from 10,000 to 20,000 USD is expected to deliver the same increase in life satisfaction as doubling Bob's income from 80,000 to 160,000 USD. In other words, raising Alice's income is eight times more efficient than raising Bob's income. Since the life satisfaction curve with respect to annual household income is concave, aggregate life satisfaction can typically be increased through more equal economic distributions.11

The decreasing marginal utility effect still holds, and is likely stronger, if we focus on ‘experience wellbeing’. Experience sampling asks respondents at random times how happy they feel. In an influential study, 1000 participants were asked whether they experienced positive emotions yesterday (Kahneman and Deaton, 2010). The proportion of people that answered affirmatively again increases logarithmically with annual household income. The speed with which marginal utility diminishes is probably higher for experience utility than for life satisfaction.12 Stevenson and Wolfers also report larger coefficients for the relationship between income and life satisfaction than for the relationship between income and experience wellbeing (Stevenson and Wolfers, 2008). Any recommendation to reduce income inequality based on decreasing marginal life satisfaction could hence be conservative.

Beyond the marginal utility effect, inequality could affect aggregate short-term well-being through other pathways, such as perceived unfairness. Several recent studies find that developed countries display a negative relationship between domestic income inequality and life satisfaction, after controlling for household income (Blanchflower and Oswald, 2003; Ferrer-i-Carbonell and Ramos, 2012; Gruen and Klasen, 2013). Oishi et al. report a ‘negative link between income inequality and the happiness of lower-income respondents [that] was explained not by lower household income, but by perceived unfairness and lack of trust’ (Oishi et al., 2011: 1).13

We have so far looked for direct evidence of how static inequality affects wellbeing. Alternatively, one could assess how inequality affects other valuable outcomes. For example, research suggests more equal societies have better somatic and mental health, higher levels of trust, better educational outcomes, and less crime (Marmot, 2005; Pickett and Wilkinson, 2015; Wilkinson and Pickett, 2010). Much has been written in social science and epidemiology debating how strong the evidence is and whether correlations might be spurious, due to a confounder or reverse causality.14 We need not settle those disputes here. Plausibly, when we combine all this research, and aggregate our respective credences, we still have reason to believe equality furthers desirable social outcomes. And we can believe so, even if not all causal effects hold up. This has two implications. First, the case for equality's short-term instrumental value could be made using values other than wellbeing. Second, this research might also indirectly support the conclusion that, in the short term, reducing inequality increases aggregate wellbeing, as goods like health are likely conducive to wellbeing (including across different theories of wellbeing).

Overall, reducing inequality is instrumentally valuable in the short term. The rate at which marginal utility diminishes in developed countries is large. So, the positive marginal effects of reducing inequality are likely large too. Relational factors like perceived unfairness and other potential interactions, like health and social trust, further support the short-term instrumental case.

Medium-term effects

Let us now move on to the intertemporal effects of income inequality up to the medium-term future. To this end, we consider – again, somewhat arbitrarily – effects on wellbeing that happen within the next 500 to 1000 years.

Do we have instrumental reason to support economic equality in the medium term? Consider first an argument against inequality that builds on the argument in the previous section.

First, the short-term case likely extends, in some way, to the medium term. Economic inequality likely creates some path dependence such that inequality now will entrench some inequality in the future. For example, Acemoglu and Robinson argue that economic distributions will also affect distributions of political and de facto legal power which in turn further affect future economic distributions (Acemoglu and Robinson, 2008, 2013; Chong and Gradstein, 2007). Moreover, high inequality likely reduces egalitarian norms and ideals and can make a society more tolerant of inequality (Birdsall, 2001: 25–6). Finally, countries with high inequality typically have lower social mobility leading to intergenerational transmission of inequality (International Panel on Social Progress, 2018: 94–6). Therefore, high inequality today increases the chances of high inequality tomorrow. And, seeing that inequality lowers wellbeing statically, inequality now raises the chances of inequality lowering future wellbeing too.

A second argument is that, because inequality lowers short-term wellbeing, we only need to establish that it does not have adverse effects in the medium term. Absent any adverse effects, the short-term positive effect becomes the tiebreaker. However, there are several potential arguments why inequality reductions could yield negative intertemporal effects, potentially big enough to outweigh short-term gains. We now consider two candidates: inequality's effect on growth and climate change.

Growth

In a recent book, Cowen argues that if we seriously value future welfare, high and sustainable economic growth rates should be our main objective (Cowen, 2018). And there are good reasons to consider growth relevant from a medium-term perspective. Because of the exponential nature of economic growth, small changes in yearly growth rates might cause massive changes in welfare in the long run. For example, ‘had America grown one percentage point less per year between 1870 and 1990, the America of 1990 would be no richer than the Mexico of 1990’ (Cowen, 2004: 127–8). Cowen argues that economic growth increases wealth, health, life span, spare time, access to a whole range of technological resources, mobility, level of education, and more (Cowen, 2018: 19–33).

As we saw above, there is still some discussion to what extent such benefits translate into increases in well-being. For the sake of argument, assume there is a logarithmic relationship between within-country GDP growth and average life-satisfaction. Suppose for the moment that a doubling in GDP over time results in a 0.1 increase in average well-being measured on a ten-point scale and a country's growth rate is constant at 3% per year. Under such a growth rate, it takes 235 years for GDP to double 10 times, resulting in an increase in average well-being of a full point. After 500 years, GDP has doubled more than 20 times, increasing average well-being by more than 2 points (we should probably abandon the ten-point utility scale by that point). If instead, the growth rate was constant at 4% per year, GDP would double 10 times 50 years earlier. After 500 years, the difference in average well-being under the two respective growth rates approaches one whole point.

If egalitarian policies lower growth, as Cowen argues, there could hence be a strong medium-term instrumental reason against reducing inequality (Cowen, 2018). However, it is unclear whether inequality-reduction does in fact reduce growth. Indeed, some mechanisms seem to reduce growth, while others seem to increase it. Consider, briefly, the main mechanisms suggested in the literature.15

More inequality may decrease economic growth: first, stark inequality might reduce institutional quality, for example, by reducing social capital, trust, and investment in public goods and by facilitating elite capture of public institutions (Alesina and La Ferrara, 2002; Alesina and Perotti, 1996; Birdsall, 2001; Chong and Gradstein, 2007; Glaeser et al., 2003; Keefer and Knack, 2002; van Bavel, 2016). Second, inequality might lead to underinvestment in human capital, especially among poor citizens (Birdsall, 2001; Ghatak and Jiang, 2002). Finally, inequality might reduce the size of the middle class, which could lead to insufficient domestic demand (Foellmi and Zweimüller, 2006; Galor and Moav, 2004; Murphy et al., 1989; Zweimüller, 2000).

Conversely, some hypothesise that more inequality may increase economic growth by incentivising citizens to work hard, take risks and invest in their future (Kornai, 1992; Li and Zou, 1998) and by leading to less income being spent on consumption, thereby increasing aggregate savings and investment (Kaldor, 1955).

How should we assess those suggested effects? One option would be to probe them all in detail. However, given space constraints, we instead survey attempts to determine their aggregate effect directly. Frederico Cingano provides an extensive literature review (Cingano, 2014). Unfortunately, Cingano finds no consensus. Between 1994 and 2014, studies that find positive relationships between growth and inequality are about as prevalent as studies that find negative relationships. To make things more complicated, the Deininger and Squire dataset most often used in this period may be unreliable and inconsistent, and inequality data from different countries is often incomparable (Atkinson and Brandolini, 2001). Several studies might also suffer from endogeneity problems. Statistical methods usually cannot fully account for the potential of reverse causality and omitted variables.

Perhaps the most promising empirical study to date has been conducted on behalf of the OECD by Cingano (Cingano, 2014). It only includes OECD countries, which is fitting for our current purposes. Cingano also uses particularly good and comparable panel data. The OECD dataset further enables the use of multiple different inequality indicators, whereas other studies must rely on a single indicator. Cingano finds that income inequality has a sizeable negative effect on economic growth in OECD countries. A 1-point reduction in Gini coefficient is associated with an increase in yearly GDP growth of around 0.15%. This effect seems to be linear. As Cingano writes: ‘in practice, no […] non-linearity was found – the effect on growth of an increase in inequality from 20 to 21 Gini points was found to be the same as the effect of increasing the Gini from 40 to 41’ (Cingano, 2014: 19). The data also suggest that the gap between low-income households and the rest of the population is of key importance. Strikingly, low-income households are defined here as those in the bottom 40% of the income distribution. Inequality caused by the very rich getting even richer is not found to hamper growth. These results suggest that solely focusing on alleviating poverty or lowering the incomes of the very rich is suboptimal. Instead, growth can be increased by addressing low incomes more broadly. Given the existence of contradicting studies, we should take Cingano's conclusions with a grain of salt (see International Panel on Social Progress, 2018: 98). Yet we conclude that it is rational to assign a higher credence to believing income inequality reduces growth in developed countries than that it boosts it.

Climate change

The critical reader might point out that Cowen's argument in favour of growth is based on sustainable growth. If combating inequality leads to higher growth rates, and if growth increases greenhouse gas (GHG) emissions, more equality might increase GHG emissions and thereby decrease future wellbeing. From a medium-term perspective there is of course good reason to consider climate change. In expectation, the effects of climate change are likely net-negative on aggregate future wellbeing in the medium term. For example, the Intergovernmental Panel on Climate Change identifies several high-confidence risks for the medium term, including increased morbidity and mortality, frequent flooding and natural disasters, food insecurity, freshwater shortages, risks to livelihoods, and vast economic costs (Pörtner et al., 2022).

Many studies indeed find a positive relationship between GDP and carbon emissions, although the estimated effect sizes tend to be bigger for developing countries than for rich nations (Acaravci and Ozturk, 2010; Holtz-Eakin and Selden, 1992; Ramanathan, 2006). Unfortunately, these studies do not control for inequality. Furthermore, since aims to reduce emissions have been widely embraced by developed nations, we cannot simply extrapolate previous findings. It is hence difficult to draw immediate conclusions from the apparent link between GDP and a country's carbon footprint. We can, however, investigate the direct relationship between domestic income inequality and a country's carbon emissions after controlling for GDP. A few early studies have found a negative relationship between income inequality and national carbon emissions (Heerink et al., 2001; Ravallion et al., 2000). Later research showed a nonsignificant relationship instead (Gassebner et al., 2011). Recently, larger datasets have become available and an early consensus has emerged. In the last decades, the association between income inequality and carbon emissions in high-income countries has shifted from negative to positive, suggesting that in recent years, more income inequality increases carbon emissions. In lower-income nations, however, the relationship has stayed negative (Grunewald et al., 2012; Jorgenson et al., 2015, 2016).

Grunewald et al. provide an explanation of the negative effect found in low-income countries (Grunewald et al., 2012). In low-income countries, many poor citizens effectively live outside the carbon economy. If inequality in such countries decreases, previously poor citizens become richer and start to emit carbon (for instance, they might buy their first car). In rich countries, most citizens are part of the carbon economy already. So, this negative contribution is not observed. Conversely, multiple pathways could explain the positive effect recently found in wealthy nations. First, high inequality may encourage conspicuous consumption as the fight for material status increases. Moreover, average working hours tend to increase as inequality rises (Bowles and Park, 2005). In addition, longer working hours might be associated with a larger carbon footprint (Fitzgerald et al., 2015; Knight et al., 2013). Second, income inequality may also increase a nation's carbon emissions by eroding social trust. In unequal countries, citizens might be less tempted to start pro-environmental social movements or promote socially responsible behaviour (Cushing et al., 2015). Third, concentration of economic power and, with it, political power can prevent pro-environmental action and regulation (Knight et al., 2017). Which pathway is most influential, and which one holds up empirically, does not matter much here. For empirical data and theory seem to point in the same direction: improving conditions for the bottom 40% of households might boost growth more sustainably than relying on other pro-growth mechanisms. So, if anything, a concern around climate change also supports economic equality.

Overall, we likely have medium-term instrumental reason to reduce inequality in developed countries. Inequality today is likely to cause inequalities in the future, which in turn lowers expected future wellbeing. Moreover, inequality likely increases GHG emissions and is somewhat likely to lower medium-term growth rates.

Longtermism and existential risk

We now move on to assess the effects income inequality might have on aggregate well-being in the very long term. To this end, we assign equal value to all well-being regardless of when it is experienced. That is, all future agents are included in Instrumentalism's timeframe. However, before we do the analysis, a short philosophical intermezzo is in order.

First, as mentioned above, longtermism has recently emerged as a research programme on future generations (Beckstead, 2013; Greaves and MacAskill, 2023; MacAskill, 2022; Ord, 2020; Schmidt and Barrett, 2023). The first longtermist claim is that, in expectation, most ethical value lies in the long-term future, where this encompasses the entire future of human-originating civilisation, including millions or even billions of years from now. Across the entire future of humanity, future people could outnumber today's people by many orders of magnitude. The second claim is that some of our actions affect the expected value of the long-term future. Accordingly, the ethical value of at least some actions will then primarily be determined by their expected long-term future effects. In our case, longtermism would imply that if we find that equality has such long-term effects in expectation, those could trump the short-term instrumental value that is more commonly the subject of discussions around inequality.16

Now, an obvious worry about longtermism is epistemic: can we ever make any meaningful predictions about effects in the very long-term future? The worry is not that we do not impact the long-term future but that we cannot rationally predict how.17 Longtermists respond by giving examples of actions where, in expectation, it seems irrational to remain indifferent regarding their effects on the long-term future. There are broadly two types of interventions: (i) existential risk interventions seek to extend the length of human existence by reducing the risk of humanity or ‘Earth-originating intelligent life’ going extinct; (ii) trajectory change interventions seek to increase the probability that, conditional on existing, humanity sets out on valuable rather than disvaluable long-term trajectories.

Starting with existential risk, it seems plausible that some policies change overall existential risk. When devising a nuclear defence strategy, for example, it would be irrational to ignore its potential impact on existential risk. Focusing so much on existential risk might seem esoteric or unusually gloomy. But, from a longtermist perspective, extinction is supremely bad in expectation, as it would destroy a potentially very long and valuable future.18 Moreover, while of course highly uncertain, expert analysis and informal polls among experts suggest an existential catastrophe might be higher than commonly believed, with estimates of 10%–20% by the end of the century not being uncommon (Ord, 2020; Sandberg and Bostrom, 2008).19 Moreover, the bulk of such percentages stem from human-induced existential risks such as nuclear war, bio-engineered pandemics, and misaligned artificial intelligence. This being so, it seems likely we can affect these probabilities by a non-negligible amount.

Beyond existential risk, it also seems plausible that some actions and policies might affect the probabilities of long-term trajectory change. Long-term trajectories are paths human civilisation takes into the long-term future (Baum et al., 2019). Those trajectories might be highly positive. For example, technological and social progress might enable great improvements in human wellbeing. Or humanity might successfully expand into space and vastly increase the number of flourishing lives. In a less rosy future, humanity might get stuck in a civilisational state of much lower value than the status quo or alternative feasible trajectories. In a longtermist analysis, we thus need to see whether policies would affect the probabilities of long-term trajectory change. For example, extreme climate change might require costly responses for a very long time. And some catastrophic events, like a nuclear war or a bioengineered pandemic, might not lead to full extinction but be so devastating that humanity never fully recovers its civilisational potential. MacAskill also argues that what moral and social values we have can be quite persistent across time. Yet what values societies adopt is more contingent than we often think (MacAskill, 2022: 3). ‘Moral change interventions’ might thus be valuable from a longtermist perspective. Conversely, adopting the wrong values is highly negative in expectation, particularly given potential risks that such values could be locked in for a long time (MacAskill, 2022: 4). One risk hereby revolves around artificial general intelligence (AGI): if the goals AGI pursues are badly misaligned or if AGI would be used by authoritarian governments to fortify their power, the wrong values could be locked in for a long time.

So, a longtermist analysis of inequality will get off the ground, if we find considerations why inequality could affect overall existential risk or the probability of long-term trajectory-change. Of course, such considerations will be far more speculative than is common in academic research. Methodologically, our assessment of the evidence is broadly ‘Bayesian’ in spirit. One way to proceed would be to include only the most rigorous studies with highly reliable results and exclude all others. However, for longtermist assessments we cannot afford this luxury. Research that empirically tests human extinction is unlikely to get ethics approval. Yet the paucity of rigorous evidence and our epistemic uncertainty does not justify ignoring the long-term future. Rather, we include empirical considerations even when our credence in them should be low (and maybe imprecise). However, when analysed, and when we aggregate our credences (informally), such considerations still justify updating our credence on whether less inequality is more likely to have good or bad long-term effects.

Long-term effects

To assess the long-term effects of domestic income inequality in developed countries, we assume that all future wellbeing matters equally, even value experienced thousands of years into the future. Our contention is that inequality reduction makes a positive marginal difference to the expected value of the long-term future, primarily because it is more likely to decrease rather than increase existential risk. Our somewhat preliminary conclusion is thus that longtermists should favour inequality reduction.

We discuss several reasons for why inequality might have negative effects and one reason why it might have positive effects. The negative effects we discuss are climate change, the effect of inequality on public institutions, conflict and polarisation, and differential progress. The potential positive effect we discuss is that if inequality lowers growth rates, and if growth increases existential risk, then inequality could lower existential risk.

Climate change

As we learned in Short-term effects, inequality increases a wealthy country's carbon footprint. This is a problem. Climate change, as mentioned above, not only reduces wellbeing in the medium term, there are also longtermist reasons against it.

First, climate change itself is an existential risk, particularly given uncertainty around its tail-end risks (Ord, 2020: 4; 6). (Although, it is likely not the greatest existential risk (Ord, 2020: 5)).

Second, climate change is likely what Ord calls a ‘risk factor’: increasing or reducing climate change will likely affect the total existential risk, even beyond the probability that climate change itself will cause an existential catastrophe (Ord, 2020: 152). For example, increasing temperatures and more extreme weather imply that the fight for scarce resources such as sweet water will increase over the next decades (Global Peace Index 2019: Measuring Peace in a Complex World, 2019). Furthermore, deteriorating living conditions might lead to climate refugees who, in part, will flee to developed countries, which could lead to institutional destabilisation and conflict.

Finally, beyond extinction risk, climate change could put us on a suboptimal (non-extinction) trajectory: run-away climate change, for example, might put us on a path we cannot easily leave and which necessitates continuous costly adjustments, such as adapting to repeated flooding and adjusting agriculture to extreme weather irregularities. When aggregating those negative effects across time, those might add up to significant long-term costs.

Institutional quality and conflict

It is often argued that a country's long-term performance depends to a significant extent on the quality of its institutions, including its political and legal institutions (Acemoglu et al., 2005). Economic research mostly focuses on explaining long-term differences in growth rates. As seen above, some researchers argue that high inequality will reduce growth rates, among other things, because it can worsen institutional quality. However, besides facilitating economic growth, public institutions have other functions that matter from a long-term perspective. For example, disaster preparedness, education, public health, foreign policy, science policy, and many other areas could influence the expected value of the long-term future. If such things go badly, they could increase existential risk. Conversely, good institutions will help reduce existential risk. For many existential risk reduction strategies likely require public goods and collective action, which in turn require good public institutions (among other reasons, because some such public goods are unlikely to be provided by markets). So, it seems reasonable to assume that, with most other societal goals, good institutions can help deliver existential risk reduction. Here is a cheesy analogy: targeted actions like washing your hands regularly or getting a flu shot can reduce your risk of dying from an infection. But you will also do well investing in a strong immune system, as that is an ‘all-purpose good’ in lowering your risk of dying from any bacterium or virus. Investing in good institutions might similarly be an all-purpose-good: rather than tackling individual sources of existential risk directly, we improve conditions for tackling whatever existential risks may come our way.

There are several reasons why higher inequality could weaken institutional capacities for longtermist public goods.

First, there is some direct evidence that, whatever the causal pathway, inequality reduces institutional quality (which in turn typically leads to more inequality) (Chong and Gradstein, 2007; Savoia et al., 2010).

Second, high inequality can lead to elite capture. Empirical work on studying political and de facto legal power is difficult, yet there is a growing consensus that high levels of inequality can lead to elite capture and thereby reduce the long-term quality of legal and political institutions (Acemoglu and Robinson, 2008, 2013; Bartels, 2018; Chong and Gradstein, 2007; Cummins and Rodriguez, 2010; Savoia et al., 2010; van Bavel, 2016). Further, if institutions are disproportionately geared towards elite interests, then they might be less likely to be geared towards positive long-term trajectories. We might see more rent-seeking and less investment in public goods. Moreover, if elite capture is strong enough, such capture, and the potential inequality that comes with it, can intensify going forward (Chong and Gradstein, 2007).

Now, one might object and wonder whether elite interests and longtermist interests will necessarily be misaligned. Could an enlightened elite not even be more longtermist than a more democratic system? Here are two potential arguments. First, wealthy donors fund a significant part of research and direct action on existential risk and longtermism (the Open Philanthropy Project, for example). Indirectly, inequality might thus reduce existential risk through such funding. Second, rich people might have a lower rate of pure time preference than less well-off people, which might make them more aligned with investing in long-term causes.

In response to the first argument, remember we here focus on income inequality reductions. Private funding only requires ‘enough’ wealth inequality going forward, it need not require elite capture. And reducing income inequality is unlikely to eradicate the required wealth inequality and the existence of big donors. In response to the second argument, we are sceptical that elite capture would translate a lower impatience rate into longtermist strategies in policy. First off, a successful transmission would require influence to be systematic and well-coordinated across time and, probably, across different elite actors. Yet lobbying and elite influence must often capitalise on shorter windows of opportunities, which makes well-coordinated intertemporal policy capture less likely. Second, even if rich people have a lower impatience rate in the sense that they might care more about returns on investment rather than direct consumption, this is quite different from being concerned with the far future. It would be a coincidence if being concerned with getting a good return in the next years (or even decades) on my own investment converged much with policies that protect the interests of far-future people.

Of course, such considerations are speculative. But, in any case, we think that, on balance, there are stronger reasons to believe elite capture would increase – rather than decrease – existential risk. First, elite capture often comes with rent seeking, which lowers institutional quality (Chong and Gradstein, 2007). Second, industries like oil, gas, weapons and others are often concentrated and well organised in exerting influence in law and legislation. Their interests and influence overall are likely to be more short-term than longtermist. Third, recent decades have seen a shift towards a stronger shareholder value orientation in corporate governance. A common criticism of this shift is that it incentivises more short-term decisions. Accordingly, corporate influence into public institutions will likely display short-termist bias too. Finally, we can, of course, imagine that ‘pro-longtermist elite capture’ could happen and gamble on that possibility. However, if strong democratic and legal oversight and the power to check elite influence is lost, we might struggle to reverse our gamble.

Third, high inequality is likely to reduce social capital and trust (Alesina and La Ferrara, 2002; Knack and Keefer, 1997; Rothstein and Uslaner, 2005). Social capital and trust in public institutions in turn are important for effective public goods provision (Beugelsdijk et al., 2004; Knack and Keefer, 1997). Effective public goods provision, in turn, is important for (some) effective measures to reduce existential risk (and, more generally, to coordinate towards more valuable long-term trajectories). Therefore, high inequality could reduce societies’ capacities to effectively respond to large-scale challenges like existential risk.

Finally, some limited direct evidence suggests societies with higher social capital and lower inequality exhibit better preventive and adaptive outcomes for environmental risks and can show greater resilience to external shocks (Kahn, 2005; van Bavel et al., 2018). For example, Matthew Kahn provides some evidence that more equal countries, when controlled for GDP, have significantly lower death rates in natural catastrophes (Kahn, 2005). While smaller natural catastrophes are different from global catastrophic risk scenarios, resilience in such events might be somewhat indicative of societies’ resilience to catastrophic risks.

So, good social and institutional conditions could help reduce existential risk. Consider next how, conversely, bad conditions might increase existential risk. A key driver of existential risk is conflict, both between and within nation-states (or what (Ord, 2020: 175–9) calls a ‘risk factor’). Conflicts and arms races raise human-induced existential risks such as nuclear war, the outbreak of a bio-engineered virus or the launch of misaligned artificial intelligence. Note that an existential catastrophe could be set in motion either purposefully or accidentally. Both are more likely during conflict. Nuclear warheads, cyberweapons, and bioweapons could all be used purposefully to attack enemy states, leading to potential global escalation. But as past nuclear incidents and close calls during the Cold War show, arms races also increase the probability of accidental catastrophes (Schlosser, 2013).

Esteban and Schneider find that formal and empirical evidence suggests that political and social polarisation increases the risk of violent conflict, both intra-nationally and internationally (Esteban and Schneider, 2008). If income inequality increases polarisation, inequality may indirectly drive existential risk. Indeed, recent evidence suggests that income inequality can increase the degree of polarisation between groups of citizens. Bonica et al. find that the degree of polarisation within the US House of Representatives, for example, is accurately tracked by domestic income inequality, with correlation coefficients rising up to 0.95 depending on the chosen time-period (Bonica et al., 2013: 105–8). Of course, correlation does not imply causation and the correlation is likely at least partially the result of reverse causation or a confounding variable. That said, we should assign a non-negligible credence to inequality partially causing polarisation. Moreover, inequality and polarisation might also play some role in getting polarising and populist candidates elected (Piketty, 2018). In a preliminary analysis of US election data, Darvas and Efstathiou find that more unequal states were more likely to vote for Donald Trump, after controlling for variables such as income, race and education (Darvas and Efstathiou, 2016). Populist politicians – like Trump, Bolsonaro, and others – are likely bad news for existential risk reduction. They are less cooperative in delivering regional and global public goods and typically prefer riskier, and more conflictual and nationalistic policy styles.

Differential progress

We have surveyed some reasons why inequality might translate into worse institutional conditions for longtermism. Beyond more formal institutions and avenues for collective action, we might also consider the cultural, moral and informal social norms that could potentially impact existential risk or whose underlying values might get locked in in the future.

The simple idea is that countries that sustain low levels of inequality will foster – and require for their support – a public moral culture that values solidarity and cooperation. More egalitarian policies might in turn move citizens and leaders towards more altruism and stronger regard to moral and social considerations in decision processes. Societies that actively work against income inequality may thereby reinforce broadly ‘pro-social’ social norms. Arguably, more egalitarian attitudes and norms might support public goods provision and favour expanding one's moral circle to other countries and future generations. Countries with high levels of inequality, in contrast, might reinforce norms of competition, individualism, and personal responsibility. Policies that encourage competition and smaller moral circles also seem more likely to attract leaders that value individualism and competition. Indeed, as Wilkinson and Pickett note, more equal societies give more in development aid and score better on the Global Peace Index (Wilkinson and Pickett, 2010: 227). Again, we may wonder whether these relationships are not partially explained by confounding variables or reverse causality. That said, the causal link through social norms and public morality has some intuitive force. If true – and drawing on what we said above – a public commitment to equality might support a public moral culture that values solidarity and cooperation, which could help reduce existential risk and lower the risk of negative value lock-in.20

A related idea is that egalitarian societies might provide better conditions for differential progress (Tomasik, 2015). The thought is that new technologies often pose a risk when they become available before society has developed the collective ‘wisdom’ to use them well. Technology should not develop too fast relative to progress in wisdom. Consider artificial intelligence for example. Bostrom argues that once artificial intelligences (AI's) outsmart humans in AI-creation, systems might iteratively improve themselves and potentially set in motion an intelligence explosion (Bostrom, 2014). Quite quickly, it might become difficult to control AI and align it with our interest. Such a scenario, if it happens, might still be some time away (or not). However, if we do not develop collective wisdom first, it might be too late by the time superintelligent AI arrives on the scene.

But what goes into the wisdom side of differential progress? Minimally, it requires effective institutions, values, and empirical insight and understanding. We have argued that equality might help strengthen the public institutions required for effective collective action to reduce existential risks. But society and the institutions governing it might also require public commitment to values conducive to longtermism. A commitment to equality and cooperation, and the norms required to sustain such a commitment, might help. Together then, equality could improve differential progress.21

#### Inequality is not merely economic but also the gross injustice of society’s failed value system. Individual lives are demeaned by institutions who prioritize billionaires over most Americans’ quality of life.

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Widening disparities in health within and between nations reflect a trajectory of ‘progress’ that has ‘run its course’ and needs to be significantly modified if progress is to be sustainable. Values and a value system that have enabled progress are now being distorted to the point where they undermine the future of global health by generating multiple crises that perpetuate injustice. Reliance on philanthropy for rectification, while necessary in the short and medium terms, is insufficient to address the challenge of economic and other systems spinning out of control. Innovative approaches are required and it is suggested that these could best emerge from in-depth multidisciplinary research supported by endeavours to promote a ‘global mind-set.’

The human development approach begins from a premise that has deep roots in liberal political theory – namely, the idea that justice is properly about the basic social structure[s] … (political, legal, social and economic institutions of a community that have a profound impact on the health status of community members) and whether these structures guarantee community members the ‘fair value’ of their most basic human capacities.1

Descriptions abound of the extent to which we live in an unjust world and of how disparities in wealth and health within and between nations have been widening inexorably over many years.2 The state of the world in the early years of the twenty first century is characterized by multiple, deep and interlinking crises in health, education, energy, water, food security, the economy and the environment that constitute an ‘organic global crisis,’ with already evident and further predictable adverse implications for the lives and well being of all globally.3 It is arguable that these crises and escalating injustice are to a considerable extent the outcome of the way in which the global political economy has been re-structured over the past 40 years,4 and that this is causally related to a value system that has failed to lead to the benefits of economic growth and scientific and medical advances (including those in public health) being applied to processes that could reduce inequities in health and human well being.5

A recent review of four prominent theories of justice (consequentialist, relational, human rights and social contract approaches) reveals general agreement on the ethical requirement for international assistance to relieve poverty and improve the health of the most deprived. An example is the widespread agreement to pursue the Millennium Development Goals (MDGs).6

However, many such approaches are arguably minimalist in the sense that they have a dominant emphasis on philanthropy, although some attention is directed to the need to rectify previous economic and other harms. It should be noted that for every $1 of Official Development Assistance (much of which is used to pay donor country staff who assist in delivering aid),7 developing countries pay about $6 in debt repayment – mostly interest on debt.8 The beneficial effects of well directed philanthropy are acknowledged, but the limited success of philanthropy in narrowing disparities, illustrated by inability to raise the resources for the MDGs, provides insights into the need for a bolder vision for poverty reduction. Briefly, achievement of the MDGs (and these are modest in terms of needs beyond the severely poor) requires about $3/4 trillion over 15 years. The sad fact is that this sum has not been raised (and that donor fatigue is increasing) while about $17 trillion (22 x as much) was mobilized in three months for the bailouts of financial institutions during the early stages of the 2008 global economic crisis. This asymmetry between the privatization of profits and the socialization of losses reflects the extent to which the lives of a minority are valued and protected while the lives of the majority are devalued and undermined. 9

Furthermore, while discussions on health and justice are conducted under the rubric ‘global health,’ they are located within what would more accurately be called an ‘international health’ approach. International health, with its focus on the provision of biomedical health care assistance, in one form or another across regional or national boundaries, has long been an item on the agendas of many wealthy countries and academic institutions. Global Health is a newer term and properly used, goes beyond international health to include acknowledgment of health in more than merely a biomedical sense, and the critical interdependence of the health of all in a world characterized, inter-alia by excessive (often wasteful) consumption of limited resources, population growth, demographic changes, porous borders and environmental and biological dangers that threaten all lives globally.10 Seeing the health of all as interconnected and intimately linked to social and economic forces, and to the values that underlie these requires a new perspective on ways of viewing ourselves and the world.

In this commentary I provide a personal view of some distortions of our values that may in part explain our predicament of persistent global injustice 11 and suggest that ignoring these prevents us from acting with the vision and wisdom to use available intellectual and financial resources to reduce injustice, improve health and ensure better lives for billions of people**.**12 I conclude by considering some attitudes and approaches that could facilitate reduction in injustice. Throughout this commentary I ask readers to keep in mind the implications of ongoing widespread poverty, depletion of limited and unrenewable natural resources, population growth, global warming and the threat of new infectious diseases as major threats to global health in the 21st century.

Distortions of Our Values

Widely and strongly held values over many centuries include respecting the lives, rights and freedoms of all within democratic systems characterized by a significant degree of social solidarity and driven by both ongoing scientific advances and well structured economies. The extent to which many of these values have become distorted, with potentially adverse effects on modern life, has long been perceived by prescient scholars,13 and it has been argued that these inter-linked distortions are underpinned by a desire and strategy for power and control through hegemonic ideas.14

Hyper-individualism

The analysis, offered here, of a variably distorted value system, centres on an ongoing process of shifting from hard-won and highly prized individualism that has enabled magnificent economic, scientific and technological advances for the benefit of individuals and many societies, to a form of hyper-individualism characterized by demands for immediate gratification and endless economic expectations by the most privileged, whose short-term horizons and lavish consumptive patterns endanger the future for us all**.** Charles Taylor has described this ‘dark side of individualism,’ as excessively focused on individuals in a way that:

… flattens and narrows our lives, makes them poorer in meaning and less concerned with others and society. [He contends moreover, that] social relationships are depersonalised by the rise of ‘instrumental reasoning’ that values specialised knowledge, the extension of technical rationality to favour calculation, systematization, formal procedures, cost-benefit evaluations, maximizing efficiency and control over nature.15

Extreme individualism and three other characteristics underpinning the economic system, (viz. unlimited desires, short-term self-interest and a form of ‘rationality’ that emphasizes calculable and measurable issues), were identified many decades previously by John Kenneth Galbraith, who predicted that these would pose long-term threats to all.16

Within healthcare systems, hyper-individualism is revealed by expectations that everything that can possibly be done for any individual comes to be incorporated into a sense of entitlement regarding what should be provided – often at little or no cost to the recipient. As a result, health care is driven by the desire to postpone death at all costs, with little appreciation of the limits of life and of medicine.17 This applies particularly when futile health care is continued with public resources in healthcare systems that aspire to be egalitarian. Patients kept alive for extended periods in ICUs, when they have multiple organ failure and large, untreatable, suppurating pressure sores exemplify this.18 As a consequence, a high proportion of health budgets in many ‘developed countries’ is spent on prolonged end-of-life treatments that have only marginal benefits. Largely ignored in the pursuit of such ‘rescue medicine’ are the lost opportunities to prioritize many effective treatments that, if promptly applied, would result in greatly improved lives for many who are relegated to long waiting lists by current health funding priorities. Under such ideological pressures, all healthcare systems are to some extent, and in varying combinations, distorted (not structured to meet local health needs), dysfunctional (driven by vested interests with money/profits as the bottom line, within increasingly corporatized frameworks) and unsustainable (costs rising more rapidly than can be afforded even in wealthy nations).

Narrow conceptions and distorted application of human rights

Human Rights, now a widespread moral language used to promote respect for life and individuals, has been remarkably successful in many complex situations. However, instead of a comprehensive approach as outlined in the Universal Declaration of Human Rights (UDHR), the focus has largely been on civil and political rights. Protection of the privacy and confidentiality of those with HIV/AIDS is a good example of successful use of this approach. However, it is notable that there has also been considerable inconsistency and selectivity in the application and pursuit of human rights. For example security threats in the USA have led to abuses of civil and political rights that Americans have long-championed and chastened others for abusing,19 with ‘significant implications for the moral authority of civil societies in more authoritarian regimes’.20

In the context of identifying and punishing individual perpetrators of human rights abuses, a narrow conception of rights and perpetrators of abuses has also neglected powerful ‘systems-based’ forces that could promote either achievement of rights or abuses of these. The role of many structural forces (including the granting of rights to corporations as ‘persons’) imposed on the global economy by wealthy nations (and their collusion with despots) that undermine the basic rights to life for billions of people is one example.21 Other distressing examples of systemic misuse of the idea of Human Rights include the many failings of the United Nations Council on Human Rights (UNCHR), as recorded by UN Watch,22 and through the Canadian experience within the UNCHR.23

Regrettably a narrow focus on human rights tends to neglect social, cultural and economic rights as integral components of the UDHR that has been widely praised and advocated as a set of ‘indivisible’ and ‘inalienable’ rights. It is gratifying that the rationale for promoting and ensuring a more comprehensive application of rights is being advanced.24

Erosion of social solidarity and of stewardship for the future

Further distortions of our value system arise from erosion of the sense of community and social cohesion required to meet aspirations for fairness and solidarity in society, thus reducing the ability to adequately protect valued public goods (highways, urban infrastructure, legal systems etc) and to reproduce caring social institutions (such as basic educational facilities, colleges, universities, and health care), universal access to which are essential for community well being.25 Indeed private (consumer) goods are increasingly viewed as having priority over essential public goods**.** A restricted concept of ‘freedom’ as ‘freedom to act’ (liberty) that focuses on narrow and short-term self-interest does injustice to the concept of freedom that should also include ‘freedom from want’, that requires a sense of obligation, duty and commitment to others.26

Dedication to economic dogma

Another major distortion stems from dedication to a poorly regulated market system that is now increasingly widely acknowledged as based on flawed economic theory and the notion of endless economic growth within practices that are riddled with corruption and fraud, propagated by obtuse bureaucratic processes, all of which increasingly pervade all facets of life.27 Galbraith has eloquently described how the modern economic system is characterized by fraud, perpetrated not necessarily by bad people, but rather under the influence of corporations28 that seem to have all the defining characteristics of psychopaths,29 and which others more recently have recognized as unsustainable.30

The still unfolding recent global economic crisis (with associated major increases in food prices) is seriously harming the lives and health of about 50% of the world's population who live on less than $3–4 per day. The middle classes in the USA, UK, Europe and elsewhere are also affected, and even in the USA millions of families are losing their homes.31 Between 1980 and 2006, the wealthiest 1% of Americans tripled their after-tax percentage of national income, while the share of the bottom 90% dropped by 20%. Between 2002 and 2006, 75% of national economic growth went to the top 1% who own 70% of national wealth. The fact that four hundred US billionaires own more than 155 million Americans combined 32 and that disparities in wealth are wider in the USA than in all other wealthy countries (with associated higher indices of morbidity, mortality, imprisonment and other social pathologies),33 speaks volumes about the distortion of values in that society – the worst of which many seek to emulate. Once a much admired nation with the intellectual and economic potential to lead the world into a more equitable and sustainable 21st century, it is arguable that the USA's opportunity to improve global health is being squandered by short-sighted policies that undermine its own citizens, and many others globally.34 Among other highly adverse effects of a pervasive market ideology is the transformation of medical care into a product for consumption in a ‘free market’.35 With increasing commodification, much else that is valued in life is demeaned, by turning ‘goods’ that should not be sold into marketable commodities.36 Moreover, the world is rendered increasingly unstable and insecure when lives are reciprocally devalued by poverty of moral imagination that ignores the concept of social justice and the role of fairer distribution of resources.37

These criticisms also apply to the new South Africa, where adoption of the above-mentioned economic dogma generally and in relation to provision of health care services specifically, combined with pervasive corruption, has led to widening disparities in wealth (Gini co-efficient increased from 0.6 in 1995 to 0.66 in 2007 and to 0.679 in 2009),38 and health.39 This has contributed to escalating social unrest, and undermining of the hope for greater equity in this new constitutional democracy.40

Most nations now have larger debts than they can easily sustain.41 Corporate goals have come to dominate in life generally and in health care specifically.42 The now threatened middle classes are coming to appreciate the fact that their plight results from the same processes that, in the past, allowed them to flourish at the expense of those lower in the chain of exploitation. It is also arguable that within the professions, greed and personal aspirations increasingly eclipse professionalism.43

The idea of living a life in which there is place for at least some degree of modesty in expectations has seemingly been suppressed. Living beyond our means and accumulating debt seems to have become a norm. Few individuals or nations seem to realize that the solution to global health problems, the economic crisis and all the other social crises we face, lies in doing better with less rather than demanding more. Of course this is also the challenge for dealing with climate change and environmental degradation.44 Whether or not this crucial message can be absorbed and internalised by those who feel the world owes them long, luxurious and safe lives, while billions of others face daily risks and premature death, is an issue that has not been adequately addressed.45

Over-reliance on science for solutions

While it is undisputed that scientific advances have provided, and will continue to provide many solutions to the manifold problems we face,46 undue faith in ‘science’ as the solution to all problems, results in selective and idiosyncratic value being placed on knowledge, with distinct preference for old knowledge over new knowledge, and preference for both new and old knowledge over wisdom in the application of knowledge.47 For example, it should be asked why there is so much emphasis on ensuring that all who could benefit from anti-retroviral drugs (ARVs) have access to these, but insufficient attention is paid to providing food to starving people (much easier to do than supplying drugs).

Another example is how, in child health research, 97% of grants are designed to develop new technologies that could reduce child mortality by 22%. If more were spent on research on effective delivery of existing treatments, child mortality could be reduced by 66%.48 In health care, new research agendas and arrangements that include explicit priority setting and allocation of resources could address the distortions, dysfunctionality and unsustainability that characterize health services everywhere.\

The Report, ‘Beyond Technology: Strengthening Energy Policy through Social Science’, notes that despite having spent over $70 billion since 1977 on research programs in the USA to develop advanced, more efficient, cleaner and more cost-effective energy technologies, these have not been widely implemented.49 Reasons given for this lack of implementation include the complexity of a diverse political milieu with multiple layers of governance and weak public understanding of energy-related challenges and opportunities.

Seeking Solutions

A decade ago we described several values that need to be widely promoted to address the moral challenges posed by global health disparities: respect for all life and universal ethical principles; human rights, responsibilities and needs; equity; freedom; democracy; environmental ethics; and solidarity.50 It seems that distortions of these values may in part account for inadequate progress. In addition to the transformative approaches we suggested at that time, some additional suggestions are provided here.

Individual level

Faced with such daunting crises, I suggest that in order to overcome feelings of helplessness, the first task for each of us, as privileged people, is to become more introspective about our privilege and to re-examine our lives. Questions we need to ask ourselves include: Who am I? What does it mean to be a privileged person? What are my goals in life? What are my academic responsibilities in relation to global health? Should the pursuit of social justice be a priority for health care professionals? Am I a citizen of the world, and should global health be a significant focus for those with an interest in bioethics?

Social level

In responding to what needs to be done at the levels of institutions, states and internationally to seek and achieve significant constructive changes, an important task is to recognize that faith in a market ‘guided by an invisible hand’ as the means of improving the lives of all, has been severely undermined by decades of widening disparities between the wealthy and the poor, and by the implications of the most recent and ongoing severe global economic and other social crises world wide.51

On one account, systematic abuses of basic human rights, including those rights that are critical for achieving a basic, decent minimum good life, are contingent on the absence (or perversion) of an ethics of virtue both in individuals and in institutions.52 Allen Buchanan provides a conceptual framework for what he calls ‘social moral epistemology’ that considers individual virtues to be either strengthened or subverted by the extent to which institutional frameworks are based on factually correct and morally virtuous concepts.53 The pervasiveness of the moral corrosion of institutions and individuals, that allows the perpetuation of harmful or evil practices, poses daunting and complex global problems.54 Addressing these may require a ‘Grand Challenges’ approach, and new depths of understanding to assist in re-framing the ways in which we see ourselves, and the world that could foster thoughtful and constructive approaches towards more sustainable life trajectories.55

A new Grand Challenges agenda

By ‘Grand Challenges’ I mean a large scale, multi-disciplinary series of research projects to explicate in some detail the workings of a complex global system that is undergoing entropy.56 Identification of ‘nodal points’ and ‘receptors’ to target for generating and amplifying change could serve as a prelude to modelling possible ways of effecting constructive changes with the potential to improve global health through structural changes to our economic and values systems. The magnitude of this task is arguably no less than the task of producing an HIV vaccine, which also requires profound understanding of the ways in which the HIV damages the immune system, and how systems' defences can be mounted to oppose such damage. There are no simple answers to either of these challenges, hence the need for a visionary research programme. Similarly suggested solutions for energy sustainability include creating a national vision for future energy use through systematic interdisciplinary social science-based research and policy formulation.57

Among the many issues that need to be pursued through such an agenda would be promotion of understanding and acknowledgment of the values and processes that have shaped the world over the past century, and of the modes of reasoning that have played a central role in framing and driving these values and processes.58 A critical, open and well-publicized re-appraisal of the currently dominant value system and of the adverse effects of the global political economy on health will require interrogation and modification of overt and covert power structures.59 Exposure and critiques of how the wealthy are deeply causally implicated in causing and perpetuating poverty and inequality, and what this implies in terms of distributive and retributive justice,60 could lead to new ways of thinking about progress through nurturing progressive values.61

These would include enhancing literacy and empowerment among women, socialization of many of the ‘risks experiences’ suffered by the global majority,62 and modification of taxation with reduction of tax avoidance and evasion mechanisms.63 Reviewing and restructuring many current institutional arrangements64 could lead to rebuilding the social commons. Within health care, re-examination of the quest for health and how health care services are structured and could be improved, would be a major task.65

#### Slow growth causes fear of rising challengers, driving a xenophobic policy agenda that escalates conflict AND prompts cyberattacks.

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The developing world is even more hard hit economically despite the fact that the worst forecasts of large-scale deaths in Africa and Latin America never come true. Death tolls resemble those in the West. The virus weakened as its moved south and the youthful populations—many of whom suffered minor symptoms— diminished the contagion. With the major economic powers hard hit, recovery is extremely difficult. Commodity prices remain low, hurting those developing countries that are dependent on the export of minerals, oil, etc. Chinese investments help, but CPC leaders are wary of providing much assistance largesse for fear the Chinese public is angered while conditions remain hard at home. Popular discontent against the CPC rises with China’s faltering domestic economy.

As during the Great Depression, there are many false starts, giving the illusion that the corner is about to be turned, justifying governments’ stubbornness in persevering with failing policies. Unlike in the 1930s, there is enough of a social safety net that discontent is contained despite slowly sinking standards of living in much of the world. The other is always to blame. Sino-American tensions escalate to an all-time high. The United States takes strong protectionist measures against China and Russia for their “disinformation,” deciding finally to erect a firewall against the two. Observers think the United States is preparing for a cyber war against China and Russia.

By the mid-2020s, deglobalization is speeding up, yielding slow economic growth everywhere. Poverty levels are rising in the developing world and there is the potential for open conflict between the United States and a China-Russia alliance.

#### Cyberattacks go nuclear---doctrine AND fog-of-war guarantee escalation.

Gabriel Molini 23, B.A. in Political Science and Government from the Catholic University of America, served as an intern at the Executive Office of the President and United States House Foreign Affairs Committee, "The Evolving Cyber-Based Threat: The Need for International Regulations to Avoid 'Accidental' Conflicts," Center for Arms Control and Non-Proliferation, 9/12/2023, https://armscontrolcenter.org/the-evolving-cyber-based-threat-the-need-for-international-regulations-to-avoid-accidental-conflicts/

While recent history has been marked by the overhanging threat of a nuclear holocaust, warfare continues to evolve and expand even beyond the deadliest weapons humans have ever created. It is simple to show the horror and damage caused by any potential use of weapons of mass destruction (WMDs), but it is not always as straightforward to assess what could lead to the use of such weapons because, historically, the possible employment of nuclear weapons has been intrinsically linked to an outbreak of conventional warfare. This idea, while still most likely to be attributed to nuclear conflict, is no longer as accurate—nor relevant—as it once was. While nuclear threats remain, technology has created another concern: new weapons that show no respect for borders or flags, existing only in cyberspace, but with physical consequences that have yet to be fully seen. Ambiguity surrounding their use and consequences makes regulating these weapons particularly difficult, but lessons from past WMD regulation successes can help inform the next steps when it comes to responding to cyberweapons.

Like weapons of mass destruction, cyberweapons don’t necessarily target combatants but are created to exploit flaws in both civilian and military operating systems, regardless of whether the systems support non-combatants. Currently, there is no universal definition for “cyberweapons” nor is there a clear procedure for measuring the response from such weapons. The United States has stated via previous Nuclear Posture Reviews that a cyberattack could invite a nuclear response, and NATO Secretary General Jens Stoltenberg has already indicated that a cyberattack could lead to invocation of Article 5 of the NATO charter. This shows a clear chain of possible escalation but it still doesn’t clarify what type of attack would lead to such a response.

Cyberweapons are incredibly malleable and accessible. This versatility and difficulty of attribution make it more difficult for leaders to make decisions as to how to respond to such an attack in a justified and measured manner. Such attacks have already been seen on a smaller scale. As of this writing, there is only one documented case of a death, and it was due to the individual suffering a medical emergency and being rerouted due to the optimal hospital suffering a ransomware attack. Another episode that garnered a great deal of attention was that of the Colonial Gas Pipeline hacking in 2021, a ransomware attack that led to significant fuel distribution issues throughout the Eastern United States for a few weeks. Both were attributed to criminal groups and did not lead to any escalation. When Russia invaded Ukraine in 2022, there was a concern that Russia would launch cyberattacks against Western countries; as of yet, that has not happened.

What would happen if Russia had launched massive cyberattacks? Or if another country does in the future? While immediate escalation to a nuclear response would be unreasonable, there remains deterrent value in underlining that a cyberattack with consequences equally a weapon of mass destruction could lead to such levels of retaliation. The key question then is if it might be possible to develop some set of rules to guide cyber weapons use that would diminish the possibility of the use of such tools and the possible escalation to other weapons of mass destruction. International governments must aggressively work toward crafting guidelines before they are forced to play catch-up in the wake of a state-sponsored attack.

In the past, world governments have worked together to develop international agreements that create rules of war inter alia to avoid civilian losses. There are no international conventions or treaties that specifically oversee the usage of cyberweapons; thus, current international standards overseeing cyber issues are predominantly focused on crimes rather than the military usage of such tools. Despite theoretical academic studies like The Tallinn Manual created as far back as 2013, the idea of how laws for cyberweapons could be applied to nationally sponsored cyberattacks has not yet manifested into international agreements.

A different approach that might be able to generate consensus on the issue of cyberweapons is for the world governments to come to an agreement about the harm that can be caused by widespread access to such weapons. While it will be difficult for an agreement to be made, participating governments could potentially agree on common standards, or de facto export controls that could limit the commercial viability of private enterprises that engage in cyberwarfare. The United States, for example, has already placed the cyber-arms company “NSO Group” on a blacklist that prohibits American consumers from buying its products. “NSO Group” became infamous for its creation of Pegasus spyware, which allowed for any electronic device to be converted into a spy tool. The company had already sold its product to many governments around the world, including both democratic and authoritarian regimes. With the company being placed on a U.S. blacklist, it makes it difficult to gain access to U.S. markets. Were other governments to ban such companies, it would raise the difficulty of doing such business. This program would ideally work in conjunction with telecommunications and internet providers to create monitoring centers that look for cyberwarfare being transmitted through their systems to limit the reach of such attacks. Building trust and cooperation on private enterprises and cyberweapons can offer further options for collaboration in the future.

With the continued development of cyberweapons, it will become more difficult to limit their reach. When such programs gain access to computer systems, it is very difficult to dislodge them. As with the intricate nature of modern-day communications and infrastructure, if such nodes were to be knocked offline, there would most likely be an effect on civilians or non-combatants. Indiscriminate targeting and the difficulties surrounding proper attribution could possibly escalate tensions between states, and the consequences for such tension are heightened if the parties involved are armed with nuclear weapons. That is why international efforts to regulate and control cyberweapons and their effects must become an international priority to avoid escalation in the digital realm with implications in the physical one.

#### Independently, sectoral bargaining builds participatory worker groups that serve as training grounds for civic engagement. That creates pathways to inclusive democracy for workers who have been historically excluded.

Tova Wang 20, Director of Research Projects in Democratic Practice, Ash Center; former Director of Policy and Research, Center for Secure and Modern Elections; J.D., NYU School of Law, “Union Impact on Voter Participation—And How to Expand It,” Harvard Kennedy School Ash Center for Democratic Governance and Innovation, 06/01/2020, Zotero, https://ash.harvard.edu/resources/union-impact-on-voter-participation-and-how-to-expand-it/. //EP

INTRODUCTION

Some politicians have enacted measures in recent years to make voting harder and to reduce participation among certain groups. Others have sought to counteract that voter suppression by implementing laws to make voting easier, such as same-day or automatic registration. There is another antidote to the effort to reduce participation: lifting up worker organizations. This is especially important to understand given the ways in which powerful individuals and groups have sought to weaken unions because of their political strength representing American workers.

Unions increase voter participation among union members as well as the people around them. This is not just a function of labor’s well-known get-out-the-vote (GOTV) programs: it is also by unions’ psychological and social empowerment of workers, indicating an effect that is lasting, that goes well beyond a single election cycle. Unions don’t just get members to vote: they work to turn them into voters.

Union members develop a sense of agency and efficacy, and gain skills and knowledge that research shows has a spillover effect beyond the individual members, especially to the members’ households. It has been shown that areas with higher labor density have higher voter turnout rates. In other words, the effects may even spread to a wider geographic region.

Decades of scholarship demonstrate that people who are part of organizations are more engaged.1 Unions are especially situated to facilitate this. Unions have often been referred to as “schools of democracy” because they are such central venues for ordinary people to engage in developing arguments, problem-solving, collective decision-making, and voting on issues and for candidates: the very practices one needs to be an active and effective participant in electoral politics.

From Carole Pateman: “The theory of participatory democracy is built around the central assertion that individuals and their institutions cannot be considered in isolation from one another. The existence of representative institutions at [the] national level is not sufficient for democracy; for maximum participation by all the people at that level socialisation, or ‘social training,’ for democracy must take place in other spheres in order that the necessary individual attitudes and psychological qualities can be developed. This development takes place through the process of participation itself. The major function of participation in the theory of participatory democracy is therefore an educative one, educative in the very widest sense, including both the psychological aspect and the gaining of practice in democratic skills and procedures.”2 Pateman rests her arguments in part on the philosophies of Mill and Rousseau, who emphasized the broadening of outlook and interests, the appreciation of the connection between private and public interests, that the experience of participation would bring, and there is also ‘education’ in a more direct sense, the gaining of familiarity with democratic procedures and the learning of political (democratic) skills.”3

The quantitative and observational data on this phenomenon are strong—however, as we will see, the impacts on voting rates are still lower than I strongly suspect they could be. I hope this paper will serve as a call for a much more granular look at the relationship between union membership and higher turnout—at how exactly the socialization hap- pens. Through looking more closely at union members’ lives and activities, research can help pinpoint more precisely what member activities are most effective and help labor organizations play an even stronger role in improving and expanding our democracy.

In the following pages, I first explain efforts to weaken unions and the voice of working people; then what the decline of unions and union membership has meant for participation; next, I look at the data showing the positive effects unions have on voter participation; and finally, I suggest how going forward we can reform the laws and how labor is structured such that it not only continues to facilitate voter participation, but even enhances it.

ATTACKS ON LABOR

The decline of unions over the last four decades or so is well documented. Membership has been declining for years and this trend is continuing. According to the U.S. Bureau of Labor Statistics, “In 2019, the percent of wage and salary workers who were members of unions—the union membership rate—was 10.3 percent, down by 0.2 percentage point from 2018.” This was nearly entirely due to a decrease among private-sector workers. The public-sector unionization rate was 33.6 percent while the private-sector rate was 6.2 percent.4

There are a number of reasons why this has occurred in the United States. Steven Greenhouse, in his most recent book, cites factors such as automation, globalization (which led to the closing of factories, which eroded labor’s base of workers), and corporations’ prioritization of profit maximization and focus on short-term stock valuation. To accomplish these latter ends, corporations downsized, cut or eliminated pensions and other benefits, and hired more workers as temps and/or independent contractors to avoid having employees who could make demands through organizing.5

Nonetheless, as Greenhouse, labor experts, and union leaders underscore, the attacks on unions over the years and the ways in which laws have been tilted strongly in favor of employer power and against the right of workers to organize, bargain collectively, and strike have been incredibly damaging.

States’ primary attacks on unions have come in the form of ironically named “right-to-work” laws. Under federal labor law no employee can be compelled to join a union. If a worker chooses not to join their workplace union, they are exempt from union dues but can be made to pay agency fees to support the work the union does represent- ing them in collective bargaining, which they do equally for members and non-members. The union also represents (and is required to do so by law) any worker in a grievance process—member or not. Agency fees cannot be used for any political activity.6

Right-to-work laws ban unions from requiring workers to pay agency fees with- out taking affirmative steps to opt into the program. Yet the union still is obligated to serve everyone under the contract equally, regardless of whether someone contrib- uted to the pool to pay for that.7 These laws seriously threaten the ability of unions to exist given the restraints on resources. Twenty-seven states have enacted some form of a right-to-work law.

In the years after the 2010 election, when a number of state legislatures flipped parties from Democrat to Republican, right-to-work laws became especially conten- tious. The fight in Wisconsin was particularly bitter, after the law was passed in 2015 and upheld in the courts in 2017. Indiana, Michigan, and West Virginia also passed right-to-work laws between 2012 and 2016.

While the decline of unions is due to a myriad of reasons as noted above, schol- ars have recently been able to zero in on the impact of anti-union laws. In their study of right-to-work laws and voting, James Feigenbaum, Alexander Hertel-Fernandez, and Vanessa Williamson observe that

RTW laws weaken unions, either by reducing union organizing (Ellwood and Fine 1987) or density (Eren and Ozbeklik 2016) or labor’s leverage more gener- ally (Matsa 2010). Union revenues are also hit: Quinby (2017) shows the 2011 collective bargaining ban in Tennessee—conceptually similar to RTW targeting only teachers—reduced teacher union revenue by 25%. We see similar declines in teacher union revenue in Michigan and Wisconsin following the RTW laws we study. Interviews with labor leaders in recent RTW states echo this weakening … We expect this weakness to translate into political weakness, either directly or through a redirection of scarce resources.8

Studies have shown that union membership dropped precipitously after right-to- work laws were passed in Wisconsin and Michigan.9 In a study comparing three mid- western states with right-to-work laws and three without them, Robert Combs finds profound differences in union membership in the two groups of states, with mem- bership rates far lower in right-to-work states. And singling out Wisconsin for its before-and-after picture with respect to its passage of a right-to-work law, the research shows that “with annual membership averaging 222,376 from 2015 through 2018, Wis- consin’s union ranks have declined by 36.5% from its earlier average of 350,043.”10

With respect to these types of laws, the Supreme Court has also played an important role in threatening unions. In 2018, the Supreme Court in Janus v. AFSCME ruled that public employees, who are covered by state laws, not federal laws, do not have to pay agency fees to cover collective bargaining based on the argument that such a requirement would violate employees’ First Amendment rights.

The state laws as well as the Janus case were designed to be a direct hit to union power based on the assumption that unions would hemorrhage members, diminish- ing the resources unions would have access to for their work, including recruitment and organizing.

Another line of attack by states has been to restrict collective bargaining. Sev- eral states now restrict or ban outright collective bargaining for many categories of public-sector employees.11 In most recent times the epicenter was again Wisconsin, which passed legislation in 2011 virtually eliminating the right of public workers to col- lectively bargain. These types of measures make union membership seem potentially less worthwhile, another contributing factor to declining membership.12

At the same time, it is notable that because of the tireless work of the unions themselves, overall membership in the country has gone down much less than expected. The unions prepared for what they knew was coming: A Politico review of “10 large public-employee unions indicates they lost a combined 309,612 fee pay- ers in 2018. But paradoxically, all but one reported more money at the end of 2018. And collectively, the 10 unions reported a gain of 132,312 members.”13 Unions have held their own by implementing strategies conceived five years ago, such as member engagement plans, in anticipation of this kind of attack.14

Finally, it would be remiss to not include the National Labor Relations Board (NLRB) as a player in this anti-union activity. Since the arrival of the Trump admin- istration (and frequently under other conservative presidents) the NLRB has also taken a lead role in preventing the formation of unions and weakening existing ones. They have done this through measures such as allowing for already widespread “mis- classification” of workers to be even more expansive: workers are easily considered contractors rather than employees and not eligible to join or form a union. This most recently includes Uber drivers15 and SuperShuttle drivers16 but has much wider ramifi- cations. Rulings have made it more difficult for workers to talk to each other and pro- vide each other with information about organizing while allowing employers to make anti-unionization communications freely.17 Most recently the NLRB banned employees from using email for any organizing purposes.18

IMPACT ON VOTER TURNOUT

The Bad News: Restrictions on Unions Decrease Voting Rates

We have research that demonstrates that the hits union membership has taken have had a direct impact on voting.

Feigenbaum et al. find that “presidential-level turnout is . . . 2 to 3 percentage points lower in RTW counties compared to non-RTW bordering counties after the pas- sage of RTW.”19

The same pattern holds with respect to curtailments on collective bargaining. Roland Zullo finds with respect to voting rates that “the marginal difference between states with full bargaining rights for public employees with either no bargaining rights or partial bargaining rights for public employees was about 3.2 percent.”20 And further, “Together, the existence of right-to-work laws and the absence of collective bargaining rights for public employees were associated with nearly 5% lower voter turnout. These findings suggest that legal institutions that weakened labor unions diminished unions’ ability to mobilize voters.”21

The Good News: Rebuilding Unions Can Increase Participation

These laws, therefore, have had an impact not just on worker conditions but on voting.

However, there is a window of promise. Looking across a number of studies with a range of methodologies, research suggests that union members are at least 3–5 percent more likely to vote.

This is more significant than just turnout in a given election year—it represents a sustained margin of difference. To be clear: this is not just a result of any particular GOTV activity, but rather a function of being in a union, the transformative effect that has.

Jan Leighley and Jonathan Nagler wrote the seminal 2006 article on this. They found that “union members are significantly more likely than non-union members to vote in presidential and congressional elections, controlling for individual-level characteristics such as education, income and occupation,”22 as well as whether it was an election year, what type of election it was, and the state’s political context.23 They did so by using data on individual union membership and state-level union membership.

Leighley and Nagler found that, had unions remained as strong as they were in 1964, turnout in 2004 would have been approximately 3.5 percent higher among low-income citizens, 3.5 percent higher among those in the middle of the income distribution, and 2.5 percent higher for those at the top income levels,24 with an even greater difference in some states. To illustrate the point, the nearly 50 percent drop in union density in California between 1964 and 2004 resulted in an overall aggregate turnout for 2004 that would have been 4.9 percent higher if union strength had remained at the 1964 level.25

Jake Rosenfeld found that “a weighted average of the sector specific union vote premium (to account for the larger size of the private-sector workforce) indicates that union members’ voting rates are approximately 5 percentage points higher than the rates of nonmembers.”26 Significantly, he further finds that “union vote effects are largest for the least educated. Among high school dropouts in the private sector, union members’ probability of voting is 11 percent points higher than for other similar nonmembers.”27

Patrick Flavin and Benjamin Radcliff examined survey data that included 30,000 respondents from thirty-two countries controlling for a wide and long list of other factors that relate to propensity to vote. They found that taking into account all of these other possible influences, union members are 2.4 percent more likely to vote.28

“Spillover” Effect: Impact beyond Members

What is striking is that the impact of empowering union members may extend to the people around those members, including families and possibly neighborhoods.29

Individuals living in states with stronger unions are more likely to vote, and this is true controlling for other aspects of campaign mobilization and demographic characteristics. Looking at the issue another way, Leighley and Nagler find that overall the decline in union strength between 1964 and 2004 resulted in a drop in turnout of 3 to 4.5 percent for typical voters.30

Benjamin Radcliff and Patricia Davis find that a 1 percent increase in union density resulted in a .20–.25 percent higher turnout. They find that “the difference between a high union state (like New York or Michigan with about 35 percent of workers organized) and a low union state (such as South Dakota or Vermont with about 10 percent of workers organized) suggests (other things being equal) a difference in turnout of about 6.5 percent.”31

Flavin and Radcliff’s survey data of 30,000 respondents from thirty-two countries included union members and non-union members. They find that unions have “spillover” effects—in places with higher union density, even non-members turn out in higher numbers. They observe that the reason for this likelihood of spillover effects is that “union members interact with other individuals and, through that interaction, may mobilize others. The most common example is the immediate family of the union member, but members likely play a similar role through interpersonal communication networks outside the family as well.”32

Finally, James Feigenbaum finds that union members are about 4 percentage points more likely to vote and 3 points more likely to register (after controlling for demographic factors) and individuals living in a union household are 2.5 points more likely to vote and register.33

WHY DO UNIONS HAVE THIS IMPACT?

Union members, just by virtue of being in a union, have the opportunity to engage in activities that directly mirror electoral participation. There are elected positions at the shop, local, state federation, central labor council, regional, and national levels that members vote, run, and participate in. They attend meetings where their viewpoints are expected to be heard. They attend conventions, and the delegates to those conventions must be elected. They vote on contracts. Members are educated on issues of importance to the union and working people. They’re encouraged to reach out to elected officials and lobby. Organizing drives build leadership, communication, and a sense of solidarity, including among workers who don’t otherwise know each other. All of these things and more quite evidently would prepare someone—and give them the skills, confidence, and sense of empowerment and efficacy—the sense of a VOICE—to participate in elections.

Research has shown that participation in organizations, and in unions in particular, increases political sophistication and interest.

Belonging to a labor union means one is involved, at least on some level, in union and workplace affairs. Selecting members for leadership positions and voting on proposed wages and contracts are both examples of political participation in the workplace . . . use of these political skills translates beyond just the workplace and increases a member’s likelihood of becoming involved in the political process and, ultimately, voting.34

Zullo describes it this way: “Like politicians, worker representatives are typically elected; negotiations resemble legislative deliberations; and contracts become the ‘constitution’ of the shop, with the parties subject to a set of rules that are enforced by an independent judiciary of arbitrators.”35

As Jasmine Kerrissey and Evan Schofer find, “Unions strive to develop the organizational and political skills of their members, cultivate their members’ political identities, and directly mobilize members to participate in political life.36. . . The imperative to maintain collective action capacity places incentives on unions to train and mobilize workers, imparting skills and experiences that may enhance prospects for subsequent political participation.”37

As Hahrie Han says with respect to organizations more generally,

Membership-based civic organizations have the potential to create transformative social interactions that shape the decision to act, and the development of political identities over time. Yet, in the United States, organizations focused on this kind of transformation have declined over time: our democracy has created a set of interests and incentives that have led to the decline of parties, unions, and other institutions that focus on transforming ordinary people to build the capacities they need to participate.38

One way of revitalizing that transformative power of organizations is by rebuilding labor power.

HOW DO WE USE REFORM AND RESTRUCTURING OF LABOR TO INCREASE ITS IMPACT ON PARTICIPATION?

Clean Slate for Worker Power is an initiative that began in 2018 at the Labor and Worklife Program at Harvard Law School. Working with leading academics, activ- ists, advocates, labor leaders, and practitioners, the project released a report in January 2020 with recommendations for reforming labor law and how unions could be re-imagined to create a more just economy and democracy.39 Although the issue of political engagement was not a driving force behind the project, it is clear that given the research detailed here, many of the reforms proposed would not only help main- tain the capacity to make members into effective voters and political participants, but might augment it and in ways that would make our political system more inclusive. Thus the report provides a road map for simultaneously lifting up workers and voter participation rates.

We have observed that the internal election procedures of unions provide members with skills and efficacy translatable to the public sphere. Clean Slate envisions a system where there will be numerous points—and perhaps more opportunities than now—at which members can consider and vote for representatives and voice their opinions, mirroring and providing practice for elections for government offices and other forms of public participation. And the nature and context around these actions may be such that they feel more meaningful than those members can undertake today.

Under the Clean Slate plan, every worker would participate in elections to choose a workplace monitor and in most workplaces all workers would be eligible to nominate and elect representatives on worker councils. And at each of these points, beyond voting itself, there would be necessary discussions, meetings, and decision-making processes, as well as trainings for officeholders, that would contribute to helping members become political participants.

As part of this vision, workers would be organized at the sectoral level, rather than by workplace—in other words, one worker entity represents an industry, not one business in that industry. As a result, layered on top of the activity at the workplace level, there would be industry-level sectoral bargaining panels with worker representatives who would operate on the basis of input from other workers, who would also be entitled to attend meetings.40 Education and training to provide workers the tools to undertake these jobs and for members to understand the issues considered would be available, further enhancing civic skills that would translate outside the context of work. For large corporations there would also be worker-selected representatives on the corporate boards, who would be trained for service through an educational service provider.

Under Clean Slate, collective bargaining rights would include issues that go beyond the immediate workplace. They would include issues that affect workers’ communities that are under the employer’s control—such as impacts the firm has on the environment, housing, and patient safety. Providing workers with the opportunity to collectively take a stand, including the right to strike, on such matters of grave concern would promote workers’ awareness and understanding of issues facing the country and the role companies play in them, empowering them to take action within the context of their work lives and as publicly minded citizens. This education and empowerment could lead to greater interest in and understanding of the importance of being a voter and exercising a public voice in this electoral realm.

This has already begun to take place. In June 2019 hundreds of workers from Wayfair, a furniture retailing company, walked out of work because the company was selling $200,000 worth of furniture to a government contractor that operates migrant detention centers for ICE.41 One can imagine the powerful effect that the policy and political education and mobilization around an issue of ethical importance had on many workers. When it emerged that Google had contracted with the Department of Defense for technology assistance, “About 4,000 Google employees signed a petition demanding ‘a clear policy stating that neither Google nor its contractors will ever build warfare technology.’ A handful of employees also resigned in protest, while some were openly advocating the company to cancel the Maven contract.” The company decided the contract would not be renewed.42

Since people’s work lives and their lives outside the workplace are not sharply divided and the behavior of firms can affect whole communities, Clean Slate gives workers the right to bring community-based organizations with the requisite expertise to the collective bargaining table. This provides the opportunity to further educate members about issues as well as potentially facilitate coalition building. These collaborations could enhance the individual political efficacy of workers as well as practically build community power through actions of common cause that could bring greater influence in policymaking realms.

Finally, Clean Slate’s proposed labor law reform would bring in workers from sectors that have been needlessly excluded from collective bargaining and organizing and provide them with this civic-power-building experience. This includes agricultural workers, domestic workers, workers in food and retail, and incarcerated persons doing work for private industry. We know from the demographics of these sectors these will be disproportionately people of color and low-income Americans—Americans who were historically excluded from unions under federal policy going back to the New Deal and who have, not coincidentally, been perpetually and systematically discriminated against in the voting system. The combination of bringing these groups into the sense of community and active voice that collective bargaining provides and educating and teaching skills for practice in the electoral system would be a powerful path to a more inclusive democracy.

Of course, scholars and union leaders have offered innumerable other valuable suggestions for strengthening labor in a new and challenging environment, all of which could also potentially contribute to increasing labor’s capacity to engage members in the democratic process. As just one of many examples, Greenhouse recommends creating “a major new national workers’ group” that would mirror the way groups like the AARP operate in advocating for members’ interests.43 He and others advocate for a card-check system for union elections to ease their formation and make union elections less tilted in favor of anti-union employers. He also seeks exploration of worker organizations that are alternatives to traditional unions, as Clean Slate does.

Something that could be achieved without legislation in the more immediate future is, as Michael Paarlberg of Virginia Commonwealth University has discussed, unions recommitting to programs that educate members on policy issues and teach them the skills to be active participants. But this cannot be just about skills and education. As detailed here, unions must be transformative to people’s sense of their own power and importance. As Paarlberg points out, they need to continue to provide activities that promote solidarity and identity as a union member, which in turn foster the desire to be engaged in collective change.44

CONCLUSION

Unions across the country have been integral in the fight against voter suppression efforts at the state and local level, and have been instrumental in passing many laws that make voting more accessible for all. The continued efforts of this nature—fighting against acts such as voter ID laws and cutbacks to early voting, and in favor of measures such as same-day and automatic voter registration—are absolutely essential.

At the same time, going beyond changing the rules, we need to understand the types of experiences people have in their everyday lives and in their communities that may lead to a stronger identity as a voter and public participant and investigate how we can build upon them. Participation in union activism appears to have a transformative effect on an individual level in some cases, outside of whether the person may have been sent campaign mail or received a phone call.

However, as mentioned in the introduction, more research is needed to dig deeper into how specific types of labor-related activities affect the propensity to vote. We have the quantitative data presented in this paper; what is needed now is a more qualitative investigation—one that seeks out talking to, listening to, and perhaps following the tra- jectories of individual members and groups of members, and perhaps also their fami- lies. Such research would better inform us on how unions can be more intentional and effective in creating committed participants in our democracy in the future.

Finally, the links between labor law and how it affects organizing and voting are evident. Thus, while unions are often in the battle for election reform, democracy activists must also be at the forefront of the labor law reform movement in a more robust manner than they have been to date. Such an alliance could yield enormous power in the fight for a fairer, more inclusive electoral system.

At a time when democracy is under attack it is more important than ever to build power among “everyday” people through groups and organizations that can serve as political homes. Worker organizations provide the opportunity to find one’s voice and feel a sense of both individual and collective power that translates into the exercise of political power. If we expand and strengthen these organizations, we can help to broaden and increase the number of voices heard in our political system and thus to strengthen democracy.

#### Top-down labor regulations are rigid and blunt. The plan creates adaptable, sector-specific standards that maintain democratic legitimacy through bottom-up participation.

Susan Hayter 18 – Senior Specialist on Industrial Relations @ International Labour Office, MSc in Industrial Labor Relations @ London School of Economcis; Jelle Visser, Professor @ Amsterdam Institute for Advanced Labour Studies; ILO, “The Application and Extension of Collective Agreements: Enhancing the Inclusiveness of Labour Protection” in Collective Agreements: Extending Labour Protection, Ch. 1

What makes the extension of collective agreements distinct from other forms of regulation, such as a statutory minimum wage, is that it is based on a concurrence – an agreement negotiated by independent, autonomous and representative trade unions and employers’ organizations in a particular sector or occupation. This makes it different from other legislation passed by and under the control of Parliaments. Extension has some of the advantages of a contract – legitimacy, based on joint participation in its negotiation; adaptability, allowing for rapid establishment or renegotiation in case of technological or economic changes; and customization, reflecting the particular conditions of an industry or occupation. However, it is a statutory measure, under the responsibility of a public authority. In most cases the legislator requires the collective agreement to fulfil specific conditions before it can be extended – for instance, that it is supported by the majority in the industry, does not conflict with public policy goals, and conforms with the law. As a decision taken by a public authority, usually the Minister, parliamentary control is warranted. Generally, it is the responsibility of the public authority to prevent this policy tool from being misused at the expense of consumers, the general public or private actors, be they newly starting firms or workers seeking employment.

More than just a technical legal tool, extension embodies a legal and political philosophy that is premised on self-regulation (Sinzheimer, 1916) and legislation by accord (Hamburger, 1939). Through extension, governments and parliaments acknowledge that standards created through voluntary negotiations between private interest organizations, if sufficiently representative, have “the same social function and may be given therefore the same legal status as state-created standards” (Kahn-Freund, 1954a). This enables the State to focus its limited resources on the protection of workers in sectors of the labour market where the interests of employers and workers are not organized.

Like many scholars before him (such as Pirou, 1913, in France; or Webb and Webb, 1920, in Britain), Kahn-Freund (1954b) believed that there would be expanding public recognition of the role of collective agreements in settling “inter-group conflicts” and of the advantages of the extension of voluntarily negotiated standards. Subsequent theories of Reflexive Law elucidate the advantages of a regulatory strategy that uses collective agreements to afford labour protection. Instead of imposing mandatory substantive legal standards in a top-down (command and control) manner accompanied by sanctions, reflexive regulation devolves rule-making and encourages self-regulation. It advances ‘regulated autonomy’ through norms of organisation, process and procedure (Teubner, 1993). It is embedded in different sub-systems (e.g. the industrial relations system) through procedural law. Substantive standards (e.g. wages and working conditions) are established through consensusoriented processes involving negotiation and decision making. The objective of a reflexive regulatory strategy is to use discursive decision making processes to create the conditions for responsiveness of regulation - without controlling the substantive outcome (Black, 1996). These new, non-hierarchical modes of governance are supported by traditional hierarchical modes (Rhodes and Visser, 2011). This “shadow of hierarchy”, creates an incentive for self–regulation. It is a necessary condition for self-regulation to succeed. Similarly, provisions for the extension of collective agreements may be instrumental in supporting co-regulation.

#### US democratic collapse causes political violence and mass death. Trump is an existential threat absent broad societal resistance.

Zack Beauchamp 24, Senior Correspondent at Vox, Pulitzer Center on Crisis Reporting funding award recipient, author of On The Right newsletter, author of The Reactionary Spirit, "It's not alarmist: A second Trump term really is an extinction-level threat to democracy," Vox, 11/02/2024, https://www.vox.com/policy/381636/trump-2024-democracy-threat-orban-second-term

In the game Jenga, players take turns removing wooden blocks from a rickety tower and then stacking them back on the top. Each removed piece makes the base more wobbly; each block put back on top makes it more unbalanced until it eventually topples.

This, I’d argue, is basically how we should be thinking about the stakes of the 2024 election for American democracy: an already-rickety tower of state would be at risk of falling in on itself entirely, with catastrophic results for those who live under its shelter.

We live in an era where democracies once considered “consolidated” — meaning so secure that they couldn’t collapse into authoritarianism — have started to buckle and even collapse. As recently as 2010, Hungary was considered one of the post-Communist world’s great democratic success stories; today, it is now understood to be the European Union’s only autocracy.

Hungarian democracy did not die of natural causes. It was murdered by Prime Minister Viktor Orbán, who seized control of nearly every aspect of state power and twisted it into tools. Not just the obvious things, like Hungary’s public broadcaster and judiciary, but other areas — like its tax administration and the offices regulating higher education.

Bit by bit, piece by piece, Orbán — whose support Trump regularly touts — subtly took a democracy and replaced it with something different.

In this, he was a trailblazer, creating a blueprint of going from democracy to autocracy that has been followed, to varying degrees of success, by leaders in countries as diverse as Brazil, India, Israel, and Poland.

The central question of this election is whether voters will grant former President Donald Trump the power to resume his efforts to place the United States on this list.

A predictable crisis

Trump’s statements and policy documents like Project 2025 amount to a systematic Orbánist program for turning the government into an extension of his personal will. Their most fundamental proposal, a revival of Trump’s never-implemented Schedule F order, would permit the firing of upward of 50,000 career civil servants.

This is the kind of thing that’s easy to dismiss as so much insider Washington drama, but the stakes are sky-high: Beyond hindering the basic functions of government that millions of people depend on, politicizing the civil service is a critical step toward consolidating the power needed to build an autocracy.

Democratic collapse nowadays isn’t a matter of abolishing elections and declaring oneself dictator, but rather stealthily hollowing out a democratic system so it’s harder and harder for the opposition to win. This strategy requires full control over the state and the bureaucracy: That means having the right staff in the right places who can use their power to erode democracy’s core functions.

Trump and his team have plans to do just that. They have discussed everything from prosecuting local election administrators to using regulatory authority for “retribution” against corporations that cross him — all steps that would depend, crucially, on replacing nonpartisan civil servants who would resist such orders with loyalists.

How far Washington would travel down the Budapest road is very hard to say. It would depend on a variety of factors that are difficult to foresee, ranging from the competence of Trump’s chosen appointees to the degree of resistance he faces from the judiciary.

But even if there’s a reasonable chance that the worst case might be avoided, the danger remains serious. With specific plans for autocratization already in place, and a recent grant of criminal immunity from the Supreme Court, there’s every reason to treat a second Trump term as an extinction-level threat to American democracy.

This assault on democracy didn’t come out of nowhere. My recent book on democracy, The Reactionary Spirit, argues that rising political antagonism in America is a perennial outgrowth of its defining conflict over race and national identity — with the current round of conflict sparked largely (albeit not entirely) by backlash to Barack Obama’s 2008 victory.

The sense among some Americans that they were losing their country to something new, defined by a more diverse population and a more equal social hierarchy, made the idea of a strongman who could roll back change quite appealing to a significant chunk of the American population. These voters had come to constitute a plurality, if not an outright majority, of Republican primary voters — creating the conditions for Trump to rise.

In 2016, Trump seized on this reactionary discontent and married it to a whole-scale agenda of backlash against the current political order. His policies and political rhetoric — on everything from immigration to gender to trade to foreign policy — were calculated to deepen America’s divisions and mainstream ideas once consigned to the fringes.

As potent as this politics proved, it’s likely Trump never really expected it to take him all the way to the White House. He had done very little transition work — nothing like Project 2025 existed. His team was scrambling from the second the contest was called in their favor.

The president himself was unfamiliar with how American democracy worked and largely uninterested in learning the details. So in his first term, he haphazardly yanked at its foundations — flagrantly assailing basic democratic norms of conduct and installing an incoherent policy process that made it very difficult to rely on any expectation of neutral, stable governance.

The results? Rising tensions between citizens and declining faith in government institutions, in part because government had become legitimately less reliable. There were several near-miss crises — people forget how close we were to nuclear war with North Korea in 2017 — and then two very real ones: a botched pandemic response and a democracy-shaking riot at the Capitol.

When critics warn about Trump’s threat, the constant rejoinder is that democracy already survived four years of Trump in office. In fact, democracy did not emerge unscathed from Trump’s first term.

And, perhaps more importantly, there are many reasons to believe that a second Trump term would be far more dangerous than the first — starting with the degree of authoritarian preparation that’s already gone into it.

A toddler grown into a saboteur

If the first Trump term was akin to the random destruction of a toddler, a second would be more like the deliberate demolition of a saboteur. With the benefit of four years of governing experience and four more years of planning, Trump and his team have concluded that the problem with their first game of Jenga was that they simply did not remove enough of democracy’s blocks.

I do not think that, over the course of four more years, Trump could use these plans to successfully build a fascist state that would jail critics and install himself in power indefinitely. This is in part because of the size and complexity of the American state, and in part because that’s not really the kind of authoritarianism that works in democracies nowadays.

But over the course of those years, he could yank out so many of American democracy’s basic building blocks that the system really could be pushed to the brink of collapse.

He could quite plausibly create a political environment that tilts electoral contests (even more) in the GOP’s favor — accelerating dangerous and destabilizing partisan conflict over the very rules of the political game. He could compromise media outlets, especially government or billionaire-owned ones. He could wreck the government’s ability to perform basic tasks, ranging from managing pollution to safely storing nuclear weapons.

The damage could be immediately catastrophic in ways we saw in the first term: political violence and mass death (from war, a crank-controlled public health system, or any number of other things). But even if the very worst-case scenarios were avoided, the structural damage to the tower of American democracy could be long-lasting — undoing the complex and mutually supporting processes that work to keep democracy alive.

When government reliably and neutrally delivers core services, people tend to have more faith in all of its functions — including running fair elections. When they have more faith in elections, they tend to trust them more as a means of resolving major policy disagreements. When they trust election outcomes, they tend to grant a baseline level of legitimacy to the government that follows, making it easier for it to reliably and neutrally deliver core services. The steady house of democracy is built by the gluing together of these functions.

John Rawls, the greatest political philosopher of the 20th century, described this as a long process of trust-building that starts with a basic faith in democratic ideals. When people of all political stripes basically believe in the system, he argues, they start acting inside its rules — giving others more confidence that they too can follow the rules without being cheated.

“Gradually, as the success of political cooperation continues, citizens gain increasing trust and confidence in one another,” Rawls writes in his book Political Liberalism.

A second Trump term risks replacing Rawls’s virtuous cycle with a vicious one. As Trump degrades government, following the Orbánist playbook with at least some success, much of the public would justifiably lose their already-battered faith in the American system of government. And whether it could long survive such a disaster is anyone’s guess.

#### The plan establishes sectoral bargaining panels with contract extension. That empowers worker organizations to set industry-wide standards.

Sharon Block & Benjamin Sachs 22 – Clean Slate for Worker Power is a project of Harvard Law School’s Labor and Worklife Program founded by Block & Sachs; Professor of Practice and the Executive Director of the Center for Labor and a Just Economy at Harvard Law School; Kestnbaum Professor of Labor and Industry at Harvard Law School; “Principles of Sectoral Bargaining: A Reference Guide for Designing Federal, State, and Local Laws in the U.S.,” Center for Labor and a Just Economy, 12/02/2022, https://clje.law.harvard.edu/principles-of-sectoral-bargaining-a-reference-guide-for-designing-federal-state-and-local-laws-in-the-u-s/

QUESTION 2: WHAT SHOULD TRIGGER SECTORAL BARGAINING?

The original Clean Slate report recommends that sectoral bargaining panels be established by the labor department upon the request of a worker organization when that organization has a membership of at least 5,000 workers in the sector or 10 percent of all of the workers in the sector, whichever number is lower. This raises a few interrelated design questions.

First, who has the authority to ask the labor department to verify whether the threshold has been reached? There are many possible options here, ranging from very low burden options (e.g., allowing any worker or employer organization to call for an election) to much higher burden options (e.g., requiring an organization to produce a certain number of cards or petitions, perhaps 5000 cards, or 30 percent, like the threshold in the National Labor Relations Act).22 An organization could even be asked to produce polling (within a margin of error), or certain international unions or companies that are quite representative could have the default right to call for an election in an industry.

Next, how will the labor department verify that the membership threshold has been reached? The processes involved could be similar to those used to certify unions in our current enterprise bargaining system. For example, one could use a card-check process or authorization cards, either paper or electronic. This has the obvious advantage of being a known and well-utilized process with a clear method of verification. On the other hand, as with current card-check processes, it requires individuals to declare their interests in being part of a union individually, thereby potentially subjecting them to retaliation. It may also be hard to get individual cards from 10 percent of workers in a large sector. On the other hand, the Department could hold an election to trigger sectoral bargaining. This is a more anonymous process, but because it would occur on a specific day, is subject to all the same anti-union tactics as elections for enterprise bargaining union drives.

Triggering Subsequent Rounds of Bargaining

Once a sectoral approach has been established, and an agreement is reached, the question remains of how subsequent rounds of negotiations are triggered. The key underlying question is whether initial agreements expire or simply persist until subsequent negotiations are triggered once again.

In some sectoral models, agreements are entered into for a set number of years (e.g., generally two-to-three years in Denmark).23 Time-bound agreements have benefits, in that they force a renegotiation of wages and benefits on a regular basis without forcing a triggering event or subjecting either side to questions about their representativeness. They also allow the duration of contracts as a bargaining chip in negotiations, allowing employers and workers to agree to a riskier, short-term contract or a safer, longer-term option. On the other hand, having contracts that expire risks greater uncertainty, work stoppages, or worse, the loss of labor standards across a sector if an agreement that was previously extended lapses.

Alternatively, a sectoral approach could simply provide that agreements remain in place until a second triggering event occurs. That could be the same trigger for initial bargaining or perhaps similar triggers setting a lower bar given that bargaining has been triggered once before. The trigger could also be negotiated on a sector-by-sector basis according to the contract. In our discussions of Argentina, experts suggested that having contracts that do not expire absent a triggering event helped contribute toward a remarkably stable sectoral bargaining system despite massive changes in the underlying political economy of the nation.

Either way, these triggers—whether time-based or otherwise—provide an opportunity for coordination among worker organizations and across sectors to build power or simply to align agreements. In countries like Denmark, the collective agreement struck in the industrial sector generally sets the benchmark for all further agreements.24

QUESTION 3: HOW SHOULD REPRESENTATIVES FOR SECTORAL BARGAINING PANELS BE DESIGNATED?

Who sits at the bargaining table is a crucial question in any sectoral approach. It implicates core questions about representation, equity, and the role of the state. In this section, we explore various options for structuring representation of employees and employers alike in any system drawing upon sectoral approaches.

The original Clean Slate report staked out some basic building blocks of bargaining panels in a sectoral approach, drawing from the triggers outlined in the prior section. In short, the report suggested that employers and workers alike would be represented on panels on a proportional basis to their share of the sector. Importantly, this proposal has already rejected the winner- take-all, “most representative union” or “most representative employer” approach seen in some other countries.25 Instead, the Clean Slate proposal relies upon a process through which both employers and workers may be represented by multiple different groups at the same table, so long as they meet these basic thresholds: for workers, for example, any group with 5,000 members or 10 percent of the sector (whichever is lower) would be entitled to its proportional share of seats and votes on the council. The Clean Slate proposal likewise provided that any employer or employers’ association in the sector that represents employers with 5,000 workers in the sector or 10 percent of the workers in the sector, whichever is lower, would be entitled to proportional representation on the employers’ bargaining council. But even these broad concepts leave open questions that are explored further in this section.

Worker Representatives

Perhaps the most central question of any sectoral approach is to decide who can appear at the bargaining table on behalf of workers. The Clean Slate proposal lays out a system of proportional representation that clearly envisions the possibility of multiple worker organizations around the table at once.26 But questions remain about how those organizations are chosen.

Choosing Organizations

To begin, it seems clear that any worker organization **triggering** the sectoral bargaining panel should receive **at least one representative** on that panel. Such an arrangement creates a clear incentive to organize new sectors, and it clearly makes sense that any organization that can meet this threshold should be represented. While this arrangement could establish **a race to the threshold**, that may not be a bad thing to **spur organizing** efforts.

Beyond that, the question remains how other worker organizations may reach the bargaining table. One option could simply be to suggest that any other organization reaching the **same threshold**—whether at the start or anytime later—gets membership on the panel **proportionate** to their own **reach in the workforce**. This variation could ensure that “runner-up” worker organizations—and even new worker organizations down the road—can still be involved in the process if they can generate sufficient interest.

Another option involves **lowering the threshold** for subsequent worker organizations to get a seat at the table. While this approach has the benefit of adding more workers to the conversation, it could be seen as diluting the voice of the lead labor union that organized the sector, even if the union with fewer members gets less representation.

Regardless of the choices above, another (potentially additional) approach would be giving certain international unions **default membership** on the bargaining panel, for example, one or more representing a **threshold** number of workers **across various industries** or even a certain size threshold of affiliates. Doing this would ensure that each panel has the strongest institutional grounding possible, though it would also involve carefully choosing how much of the proportionate vote these internationals receive—likely not a controlling stake, unless they are the unions that trigger the bargaining panels.

Likewise, if sectoral panels represent frequently fissured occupations like janitorial and transportation (see defining sectors above), it may be useful to give unions representing fissured occupations **default membership** on the appropriate panels, **regardless of thresholds**. This would ensure that fissured workers’ interests are well represented when they arise in sectoral bargaining. This may require a separate process to assess which union (or unions) best represents fissured workers’ interests, not to mention careful allocation of voting rights.

Decisionmaking: Proportional Voting Rights

Regardless of who is at the bargaining table, the question of exactly how proportional voting rights are allocated among the various worker organizations remains. One option would involve allocating to each worker organization in proportion to the number of members who triggered the panel or who otherwise triggered their participation (for non-default participants). It should be relatively straightforward to allocate representation on these terms, but it’s a point-in-time measurement that may not reflect changes in power-building over time.

Instead, proportional voting rights could be allocated to worker organizations based on their total membership in the sector. This too should be easy to measure, but it could be administratively cumbersome (and politically worrisome) to force worker organizations to produce membership lists or otherwise document their membership to, for example, government actors. And realistically, at least during transitions to sectoral approaches, most worker organizations will realistically only formally represent a small fraction of the industry in question.

An even thornier issue arises if workers may be members of more than one worker organization. One option would be to do nothing. But another would involve each worker designating that their (individual) votes must be allocated to one group or the other—which could be an administrative nightmare. Either way, it is important to ensure that each individual worker’s voice is heard only once, lest the system creates incentives to join multiple worker organizations to get additional votes, causing the number of worker organizations to balloon.

Alternatively, a sectoral approach could set out a proportional voting system that gives each worker some number of proxies to be split across any groups of which they are members. For most workers, this could mean, e.g., giving three proxies to a union. For others, it could involve giving two proxies to a union and one to a worker center. This kind of system would be harder to administer, but it would allow any individual worker to join multiple worker organizations as desired.

Employer Representatives

Any sectoral approach relies on having employers represented at the bargaining table, but deciding which employer groups to recognize can be even more complicated than choosing employees. As explained above, the Clean Slate proposal envisions establishing a threshold for the employers who would be recognized at the bargaining table, or any employer or employers’ association in the sector that represents employers with **5,000 workers** in the sector or **10 percent** of the workers in the sector, whichever is lower. In some sectors, a large employer may be able to seek representation on their own. But for other employers—or sectors without employers that large—this system relies upon **employers’ organizations** to exist and bargain with employees.

Some countries with existing sectoral bargaining systems have longstanding employer organizations that have long represented employers at the bargaining table. For example, the Danish Employers’ Confederation launched in 1896; over time, it has developed a centralized structure.27

But the U.S. has limited preexisting infrastructure to represent members in bargaining in most industries.28 Industry groups like the U.S. **Chamber of Commerce** and **N**ational **F**ederation of **I**ndependent **B**usinesses, respectively, self-report hundreds of thousands of members.29 Those groups purport to speak on behalf of their members on policy initiatives, but even that is substantially questionable.30 Regardless, they are not organized to bargain on behalf of their members.31 In most industries, the U.S. lacks a strong infrastructure of existing industry groups to represent multiple employers at the bargaining table and to hold those firms accountable to their agreements.

Any such system is likely to result in the creation of new employer groups—or the evolution of existing employer groups to perform a function that is quite different than what they do now in most cases. Indeed, industry groups today have no formal mechanisms for accountability to their members save, perhaps, losing paid memberships.32 The Danish model shows that **strong labor-management relationships** can be beneficial for **labor harmony** and **productivity**, creating incentives for employers to take part in the system.

Registration System

But the question remains about which of these groups sits at sectoral bargaining tables. One way to address this is to create a formal registration system for employer representatives, much like how labor law regulates labor unions.33 South Africa has such a model, giving employers the statutory right to form **employer organizations** that are recognized by the state.34 The state could, in turn, allow employers to show that they represent some **threshold number** of percentage of employers in the industry, much like the representivity question on the workers’ side. Alternatively, sales, revenue, profit, or production could be even more effective measures of representativeness.

In turn, as the original Clean Slate proposal set out, multiple employer groups could be given seats at the bargaining table. There are advantages to allowing multiple employer groups at the bargaining table—chiefly, that a diversity of employers’ voices is represented. There is also a benefit to having a parallel structure with workers. On the other hand, this arrangement can make it more difficult to reach consensus and build stable bargaining relationships. In our explorations of sectoral bargaining in countries like Denmark and Sweden in particular, the **consolidation** of **employer organizations** has been identified as a key factor in promoting **broad- based labor standards**.35

One way to resolve these competing considerations is to create opportunities to **improve coordination** among worker and employer organizations alike. For example, a sectoral approach could create a **default role** for **broader** international **unions** and employer **organizations** to be involved in bargaining in each sector or agreement, even if they have no ultimate role in decisionmaking. The AFL-CIO could have a default seat at the table for a sectoral agreement in the manufacturing sector, for example, whether or not they have a vote in the particular agreement. This would facilitate **cross-sector coordination** in bargaining and could even bring about some of the advantages of consolidation of employer organizations that the U.S. does not yet have.

Ensuring Employer Participation

Unlike countries that have a long tradition of robust employer organizations, it is important to consider a default in the U.S. **if no employers participate** in the bargaining process, for example, in an effort to evade bargaining that has been triggered appropriately. In such cases, the law could allow the Secretary of Labor to **designate** an employer representative to **stand in** for the employer in bargaining. No employers would be directly bound by any such agreement, given that they are not parties to the agreement. But on the other hand, that agreement could be submitted to the Secretary for potential **extension** throughout the industry.36 Indeed, the **possibility of extension** creates an **incentive** for employers to **take part** in bargaining themselves, rather than risk having an unfavorable or unrepresentative agreement extended.

Alternatively, the Secretary of Labor could be empowered to extend based on a proposal from the workers’ representatives alone, if it meets the requirements for extension. This scenario would create a significant incentive for employers to take place in the bargaining process as well.

Incentives for Participation

Another option—which could be layered atop any of the others—would be to create incentives for employer organizations to seek recognition or otherwise take part in sectoral bargaining situations. If employer organizations in a sectoral system can bargain for flexibilities in (or even exemptions from) broadly applicable laws, they may be more likely to participate in a system of sectoral bargaining.37 Implementing legislation can create a grant program to help employer organizations—just like worker organizations—develop sectoral approaches. Or employer organizations that participate in sectoral bargaining approaches could be prioritized for participation in training programs, which would be in line with historical labor-management partnerships from the apprenticeships field, for example.38

Decisionmaking at the Bargaining Table

Given that there would be multiple employer representatives at the bargaining table, another question is how the panel makes decisions at the table, especially when consensus is difficult or impossible to reach. The Clean Slate proposal has embraced a proportionate voting scheme, but that can be arranged proportionate to the number of workers employed by each employer or organization, or alternatively, proportionately by their wages or even revenues, each at any given point in time. In this arrangement, the employer or organization with the greatest share of employees, wages, or revenues would have the greatest voice at the bargaining table. One downside to such a system is that larger industry groups could swamp the interests of smaller ones. And such a system has additional challenges, especially when the same employer may be represented by two or more employer organizations. If the system does not somehow account for employers represented by multiple organizations, employers may elect to join ballooning numbers of allied (or even splintering) industry groups to earn more seats at the table, in effect.39

Alternatively, the law could simply provide that employer organizations work this out among themselves. South Africa requires that each bargaining council establishes a constitution setting out these sorts of parameters. For example, the 2017 Constitution for the National Bargaining Council for the Clothing Manufacturing Industry provides that employer associations who are founding parties each receive one vote, after which votes are allocated proportionally among remaining employer organizations according to the proportionate share of employees it employs.40 On the other hand, the National Bargaining Council for the Road Freight and Logistics Industry provides a simpler proportional bargaining formula where each employer organization has representatives in direct proportion to their share of employers represented across all employers that are party to the agreement.41 In the event that no decision is reached, the law could nonetheless set a default. And certain agreements (e.g., those that disadvantage a certain racial group) should be prohibited.

Subsequent Bargaining Panels

The options above address which employers and workers are at the bargaining table for initial rounds of negotiations, but a second question involves who is at the bargaining table for renegotiations of any sectoral agreements. This question is deeply intertwined with the related question of how subsequent negotiations are triggered, discussed in the “Triggering Subsequent Rounds of Bargaining” subsection, above.

If sectoral bargaining agreements have an indefinite term, as they do in Argentina, then the bargaining process only begins anew when one party triggers the negotiations. In that case, then any party successfully triggering negotiations is a natural anchor for the subsequent rounds. Other parties may be added according to the recognition rules listed above.

If agreements expire after a set number of years, then the simplest option is to begin with the parties at the table in prior negotiations. Panels could be adjusted, for example, to include any parties that newly meet the thresholds listed above.

Under either scenario, a more difficult question is whether and how an employer or worker organization may lose recognition for being insufficiently representative. In Argentina, where worker organizations have exclusive bargaining rights, there is no mechanism to cancel or challenge such recognition. In a Clean Slate approach, either employers or competing worker organizations should have the burden of showing that the worker organization previously at the bargaining table is insufficiently representative, for example, in that it cannot meet the trigger thresholds.

Qualifications and Training

Another question involves what qualifications should be required of worker and employer representatives alike at the bargaining table. Of course, the default is that worker and employer organizations, respectively, simply decide who they send to the bargaining table without any minimal qualifications or training. But requiring (or at least encouraging) some baseline qualifications or training may lead to better outcomes, especially in the initial implementation of sectoral approaches.

On the one hand, sectoral approaches could establish qualifications or at least guidelines for who should be at the bargaining table, especially to promote race and gender diversity, equity, and inclusion, and to ensure that worker organizations are able to build power. For example, guidelines could encourage worker and employer representatives to generally reflect the underlying demographics and experiences of the workers and employers they represent. Such guidelines could lead to greater diversity at the bargaining table, and as a result, stronger outcomes for both workers and employers alike. But the stricter or more enforceable such guidelines are, they could lead to constitutional concerns. Admittedly, employer and worker organizations alike may have concerns about guidelines for who they decide to bring to the bargaining table, even if the underlying goals are desirable.

Alternatively, any system of sectoral approaches should require, or at least create incentives to undertake, training for everyone involved on these concepts. For example, participants at the bargaining table could be mandated to have real training on diversity, equity, and inclusion. In fact, this sort of shared training could be less charged, while still giving both sides a common vocabulary and toolkit for incorporating these important principles and analyses into any agreement. Any such training must be conducted by skilled experts who can ensure that it has an impact. Ideally, the ultimate training would have buy-in from both workers and employers, too, perhaps as a joint production.

Governments also have a role in creating incentives for this sort of training. For example, they could provide funding to support this sort of robust training. Or the labor department could expedite applications for extension if they are negotiated by more representative negotiators.

Likewise, a system can create joint training materials for explaining the importance of sectoral approaches. For example, Denmark’s main employer and worker organizations teamed up to produce an animated video on the country’s sectoral bargaining system.42 The video suggests that jointly bargained sectoral agreements are more desirable than labor standards established by lawmakers without the same level of input from employers and workers alike. A sectoral system can generate buy-in through this sort of jointly developed training.

Finally, a system could simply provide staff to support either side in the negotiation. Mediation is one model for this sort of structure, but it could look less neutral as well.

QUESTION 4: HOW SHOULD BARGAINING BE CONDUCTED?

In order to make participation on a bargaining council truly accessible to rank-and-file workers who participate at the bargaining table, those workers must be paid for the time they spend bargaining— which can be a considerable amount. Depending on the sector, industry, or panel, employers could be required to provide these workers with paid time off to participate in bargaining, which may in turn be reimbursed by employers’ organizations. Asking employers to pay for this time **makes sense** in that workers are participating in important **management decisions** and should be compensated accordingly. Along these lines, the U.S. federal government recognizes “official time” for employee representatives participating in collective bargaining.43 The main drawback of this approach is that employers are likely to oppose the use of official time (either in general or in particular instances), which could create regular obstacles to workers’ full involvement in bargaining councils or other sorts of mechanisms established under sectoral approaches.44

Worker organizations could also compensate rank-and-file workers for the time they spend bargaining. While this arrangement is less likely to trigger opposition than requiring employers to pay, it does depend on well-financed worker organizations. Those with fewer resources will not be able to bargain as effectively.

A third option involves leveraging federal funds to **support** rank-and-file **workers’** participation in bargaining. Federal funds could be provided directly to workers, but likely makes more sense coming either through reimbursements to employers or pass-through grants to worker organizations (along with administrative support to those organizations to manage the payments). This sort of arrangement can ensure **adequate resources** for engaging rank-and-file workers, and **protects** them from at least one aspect of **employer opposition**. It also ensures that a worker organization’s relative resources do not block its rank-and-file workers from taking part in the process.

Engaging Workers and Employers

Any sectoral bargaining approach also needs to consider how rank-and-file workers and employers are engaged in the bargaining process—those who are **at the bargaining table**, those who are **represented** at the bargaining table, and (due to extension) those who are in the sector but **not actually represented** at the table. Each of these building blocks implicates key questions of **equity** and **power-building** central to the Clean Slate agenda.

Negotiating Agreements

Sectoral approaches require impacted workers and employers to have the chance to weigh in on the **shaping of agreements** prior to the ultimate up-or-down vote at ratification. Unions especially have decades of experience at engaging their members in negotiations, and need no additional structures to do so effectively. But newly formed (or refocused) employer organizations **lack the** same **history**, and very well may need more guidelines for engaging their membership. And given the possibility of extension to non-members, discussed below, it would be ideal for workers and employers alike to have some basic input into the shaping of proposals **even if** they are **not represented**.45

Some worker or employer organizations may bring members to the bargaining table in some form, which is perhaps the most direct way to engage them in the development of proposals, but doing so is challenging for all of the reasons discussed above. Moreover, such an approach does not likely engage employers or workers who are non-members. Sectoral approaches should consider incorporating additional mechanisms for seeking feedback from impacted workers and employers, respectively, in shaping negotiations prior to final ratification.

One option for incorporating workers’ and employers’ voices in the negotiation process involves simply directing worker and employer organizations, respectively, to do so. This would be the most administratively straightforward way to do so, but it leaves significant discretion to these organizations to carry the commitment through. But creating only general or vague standards for engaging workers could provide avenues for attacking or harassing these organizations, much as the duty of fair representation has been so used.46

Instead, a sectoral approach could dictate certain **baseline standards** for engaging rank-and-file workers and employers alike, essentially creating a baseline (or **safe harbor**) minimum level of engagement that would ensure that worker and employer organizations met their duties. For example, a sectoral approach could **require** worker or employer organizations to hold **structured listening** sessions with their membership. They could be required to conduct an initial **survey of** bargaining **priorities**. Or they could be required to more **transparently report** publicly on the bargaining process at specified intervals.47 Labor departments could also consider the quality of outreach in deciding whether to extend an agreement sector-wide.48

Ratifying Agreements

Regardless of whether sectoral systems engage individual workers and employers in negotiations, they could also include a step whereby members of organizations involved **ratify** the ultimate agreements. Once ratified, the contract would apply to **all parties represented** at the bargaining table, and presumably the contract could be considered for **extension to non-parties**, as discussed further below.

Under the National Labor Relations Act (NLRA), unions may decide whether members need to ratify completed agreements.49 Unions can further decide how any such ratification may occur.50 Sectoral agreements could similarly delegate this decision to unions.

If ratification is required, it should require agreement of a majority (50 percent plus one vote) of the workers and employers, respectively, represented at the bargaining table. This can be a more **straightforward calculation** for employees. In terms of employers, the calculation should be based upon the same metric used to assess **proportional vote**, whether it be by wages or revenues.

As a practical matter, an agency will have to be empowered to oversee the ratification vote. At the federal level, the National Labor Relations Board (NLRB) would be the right agency, but a state or local labor department or human rights commission could do the same. Voting could involve a point-in-time vote after an agreement in principle is reached or even a proxy voting scheme. Sectoral approaches should consider the impacts of pre-authorization proxies— essentially delegating authority to those who are at the table conducting the bargaining— which could be administratively more straightforward but may be less helpful for ensuring engagement and building power for workers and individual employers alike.

QUESTION 5: WHAT IS THE SCOPE OF THE BARGAINING?

In terms of the subjects that can and should be bargained, the original Clean Slate proposal calls for distinguishing between high- and low-density sectors. The basic principle is that the scope of bargaining should be broader and more comprehensive in sectors with greater numbers of workers represented by worker organizations than it is in sectors with fewer workers who are represented. Beyond that, the report recommends that if an industry has a particularly high percentage of workers covered by collective bargaining agreements, a majority of the worker organizations involved could invoke a prevailing wage option that would require the DOL to set basic economic terms for the sector—including, but not limited to, wages and benefits—based on the terms contained in the workplace collective bargaining agreements in the sector.

In envisioning a nationwide sectoral bargaining system, for example, the Clean Slate report proposed that in lower-density sectors, bargaining at the sectoral level would establish minimum workplace standards for wages, benefits, scheduling (including flexible working arrangements), leave time, and workplace health and safety. The sectoral bargaining panels in low-density sectors would also be required to address gender and racial equity—including, but not limited to, pay equity. In higher-density sectors, bargaining could address a broader range of subjects and could potentially reach a much wider range of mandatory subjects of bargaining, including a more comprehensive system of wage scales, benefits, and other terms and conditions of employment, and even provisions for grappling with climate change. As in lower-density sectors, high-density sectoral bargaining would be required to address gender and racial equity.

For reference, South Africa’s labor law employs similar distinctions, where “statutory councils” can be established on application by a representative trade union or employers’ organization unilaterally, but it then has a limited bargaining agenda. Their representivity threshold—trade union or employers alike must represent 30 percent of the employees in the sector—is well below the 50 percent threshold required for extension of a bargaining council agreement.51

In practice, the Clean Slate report leaves open several questions, including where to draw the lines around sectoral density, which subjects should be bargained, and whether to allow worker organizations to bargain away statutory rights. Each of these questions is addressed below.

Sectoral Density

If a sectoral approach differentiates allowable subjects of bargaining based on sectoral density, one key question is how to set thresholds for high-density and low-density sectors, respectively. Depending on the particular type of sectoral approach, these thresholds could simply be set at a fixed percentage of union membership regardless of sector, or they could be drawn differently for each sector. Considerations include:

● For establishing a minimum for “low-density” sectors, what is the minimum density required to ensure that there is no capital flight that would cause jobs and economic production in that industry to be shifted to other geographical areas, whether countries, regions, states, or localities, depending on the level of policymaking involved?

● For establishing a minimum for “high-density” sectors, how much density is necessary to ensure that workers have sufficient power to bargain over a broad set of terms and conditions of employment? (We discuss this further below.)

Given these questions, it is important to engage labor economists, worker organizations, and other stakeholders in deciding where to draw these lines for low- and high-density sectors alike.

Likewise, if any sectoral approach involves sectors with large percentages of workers covered by collective bargaining agreements, it should consider implementing a prevailing wage option where a government agency establishes the basic terms and conditions of employment based on those agreements. In that case, the key question is of course what percentage of need be covered by enterprise-level collective bargaining agreements in order to trigger this option. As with drawing a line between high- and low-density industries, it is equally important to engage labor economists, worker organizations, and other stakeholders in deciding which industries can support prevailing wages.

Either way, it is important to fashion any federal-level prevailing wage options with the nondelegation doctrine in mind, ensuring that the executive agency charged with setting the wages is guided by an intelligible principle cabining its discretion, and that the agency is not simply acting as a rubber stamp for the decisions of private parties. In other words, while the agency should be guided by prevailing wage agreements, the law must establish rules according to which it makes an independent judgment about the right prevailing wage.

Subjects of Bargaining

Any sectoral approach also needs to establish the appropriate subjects of bargaining. As described previously, the Clean Slate report suggests that low-density sectors should have a more limited subset of bargaining subjects, while higher-density sectors can support a much wider set of rights.52 For either, one important (related) question, discussed below, is whether (or which) statutory protections can be traded off in bargaining.

For low-density sectors, the Clean Slate report proposed various options ranging from bedrock employment rights like minimum wages, workplace health and safety, and pay equity, to more commonly bargained subjects like benefits, paid leave, and flexible scheduling, all of which should be implemented with a commitment to gender and race equity.

While any of these would be reasonable to include in low-density sectors, taken together, they present a relatively expansive agenda. A sectoral approach could instead either establish a hard- and-fast set of bargaining subjects, or it could allow parties to choose a subset that is appropriate to the particular situation. For example, for a state-level law incorporating vertical sectoral approaches, it could allow bargaining over wages, some types of benefits, and paid leave. A local law incorporating a horizontal sectoral approach may focus exclusively on workplace health and safety and flexible scheduling, for example, in pandemic response.53 Or it could simply allow parties to choose from all of the terms and conditions outlined above, but it must have guardrails (e.g., minimum scope) to ensure that employers do not bargain over only the most minimal range of subjects.

In high-density sectors, the Clean Slate report suggests an even more expansive set of bargaining subjects, including subjects that transcend the workplace, such as climate change. Sectoral approaches could lay out an expansive series of bargaining subjects for high-density industries, or they could simply leave the subjects of bargaining open-ended and allow the parties to make decisions as appropriate—ideally, in a clear enough manner that courts cannot artificially constrain those subjects. Either way, they should direct parties to prioritize race and gender equity.

Variation

Another key issue is whether sectoral bargaining approaches can allow for variation by occupation or geographical area, and if so, how. For some closely targeted sectoral approaches, this is not relevant. But for a nationwide or statewide sectoral bargaining approach, occupational or regional variation might be appropriate. The authorizing law could expressly provide for such variation (e.g., directing the parties to establish different wages for different occupations delineated by a government agency), determining which approach is especially relevant for low-density sectors, and where capital flight is a key issue. Alternatively, the law could simply authorize the bargaining parties to agree to such variation as they see fit—which would be most appropriate for higher-density sectors. Further, any variation could be bargained by the main parties to a bargaining agreement, or they could designate separate occupational or geographical tables to lead that bargaining. The law itself could designate how particular occupational or regional terms are negotiated, or that decision could be left to the parties to decide.

Derogation

A final question involves whether sectoral approaches might allow the parties to bargain away core labor standards provided elsewhere in the relevant federal, state, or local law, in exchange for other rights; this is often called “derogation.” While core employment laws in the U.S. generally disfavor derogation,54 at least some laws do allow for such waivers in very limited circumstances when workers are subject to collective bargaining agreements.55

The Swedish model underscores the potential power of derogation. Swedish law allows collective bargaining agreements to derogate below certain labor standards, including wage and benefits. Swedish labor unions suggest that the possibility of derogation provides significant room for them to maneuver in negotiations with employers.

Nonetheless, creating incentives for derogation (or even allowing it) is controversial, and for good reasons, especially when workers lack bargaining power or strong information or when derogation can impact others who have less bargaining power.56 But in the context of strong unions—perhaps in high-density industries only—providing for derogation could allow for strong worker organizations to capture more of their highest priorities.

QUESTION 6: WHAT HAPPENS IF THERE IS AN IMPASSE?

At some point during a negotiation over the formation of a union, the negotiation may break down. At that point, the workers must have the right to strike, or else there needs to be a mediation. Other countries with sectoral bargaining regimes provide for such mediation, including Denmark and Sweden (which have public officials dedicated to mediating when the parties cannot reach a national agreement). In South Africa, bargaining council constitutions provide for dispute resolution terms, including the possibility of impasse.

Designing a new sectoral approach that embraces mediation raises two interrelated questions:

1. What triggers the mediation?

The mediation likely needs to be triggered by a formal request, which could be from a majority of panel members on one side (employer or worker), from a supermajority of panel members on one side, or from a supermajority of the panel in its entirety. Alternatively, if existing contracts do expire, mediation could be triggered by a certain interval prior to that expiration.

2. Who conducts the mediation, and who pays?

The mediation could be conducted either by a government agency or by a private mediator. Other countries have government agencies for this, like Denmark’s Statens Forliginstitution and Sweden’s National Mediation Office.57 The government agency, which could be an agency like the Federal Mediation and Conciliation Service (FMCS) in the U.S., would enable free or low-cost mediation services, and this presumably reduces the risk that the incentive to get rehired could affect the mediator’s result. That said, the quality of government mediators obviously depends on the quality of the agency at that time and may be limited in quantity. A private mediator, on the other hand, would provide for a wider selection (even if chosen off an approved list), but this presents its own logistical difficulties (e.g., there needs to be a process for choosing the mediator, and the mediator would need to get paid separately).

Of course, negotiating the first contract is often just as hard as forming a union in the first place. As noted in the initial report, Clean Slate favors the approach taken in the Protecting the Right to Organize (PRO) Act; namely, interest arbitration for first contracts.58 Under the new statute, once a union requested collective bargaining, the employer would have 10 days to commence bargaining. If, after 90 days of bargaining (or for an additional period of time if the parties mutually agreed to such an extension), no agreement is reached, then either party would have the right to request mediation conducted by the FMCS. If the parties did not reach agreement within 30 days of the mediation request, then the dispute would be referred to a tripartite arbitration panel. One member of the panel would be selected by the union, one by the employer, and one neutral member mutually agreed to by both parties. A majority of the panel would be empowered to render a decision, determining the terms of the agreement, which would be binding on the parties for two years, unless amended by mutual agreement. The panel’s decision would be based on the employer’s financial status, the size and type of the employer’s business, the employees’ cost of living, the employees’ ability to sustain themselves and their dependents, and the wages and benefits provided by other employers in the same business.

Similar questions to the ones asked above need to be answered about first-contract arbitration as well, however. First, how does a worker organization trigger first-contract arbitration? Does it require that certain statutory criteria are met, or can it happen at any time? Does it require a formal request from a majority or supermajority of worker panel members?

Second, who constitutes tripartite panel of arbitrators, and who pays for them? They could be chosen from the ranks of an agency like FMCS, which has similar pluses and minuses to using FMCS as a mediator for the initial formation of a union. To the extent that the tripartite panel is chosen from private arbitrators, there might be one chosen by the union, one chosen by the employer, and one mutually agreed upon. Again, private arbitrators would need to be paid separately.

QUESTION 7: HOW AND WHEN SHOULD CONTRACTS GET EXTENDED TO THOSE OTHER THAN THE REPRESENTATIVES OF THE BARGAINING PANELS?

Sectoral bargaining provides a key opportunity for contract extension, or a mechanism by which a contract negotiated by a critical mass of workers and employers in an industry can be extended to all employers and workers through the industry. Generally, this allows non-parties across a sector to benefit from the agreements reached by the parties at the bargaining table.

To be sure, not all countries with sectoral bargaining systems have a formal process for extension to non-parties. In Denmark and Sweden alike, there is no statutory provision for extension, and labor unions report little activism seeking concepts of extension in most industries. But those countries are starting from a place of significant union density and involvement.

Standards for Extension

The Clean Slate report fully embraces contract extension, but it nonetheless recommends a key guardrail: Sectoral agreements may only be extended if the Secretary of Labor determines that it meets certain standards. The key elements of this standard include that the agreement must:

● advance gender and racial equity;

● improve the standard of living for a majority of workers in the sector; and

● provide all workers in the sector with a living wage; an adequate amount of paid sick, family, and vacation time; access to a secure retirement program; and a safe, secure, and healthy workplace.

Not all countries establish searching standards for extension. In Argentina, the Labor Minister may validate an agreement for extension, or erga omnes, simply by determining if it is consistent with law and some broad consideration of the public interest. In practice, this is not a particularly searching inquiry once parties have agreed to the basic terms of a contract.

In South Africa, the Labor Minister has no discretion and must extend an agreement if the parties meet the (numerical) standards for representivity: if more than 50 percent of the employees in the sector are covered by the worker organization that is party to the agreement or are employed by employers that are party to the bargaining council.59 On the other hand, if the parties fail to meet these standards, the Labor Minister may (as a discretionary matter) also extend agreements under three conditions: if they find the parties are “sufficiently representative,” if that failure to extend the agreement would threaten sector-level bargaining, if the council has established an independent body to hear non-party appeals for exemptions to extension, and if the agreement has fair criteria for considering those appeals. In these situations, South Africa has a system for gathering input on the agreements, much as France does for its extension decisions, both of which systems are described further below.

In all, setting a standard has substantive benefits, ensuring that overly weak agreements cannot be inappropriately extended, not to mention empowering worker organizations to demand these minimum standards in sectoral agreements. But setting standards for extension also has benefits in terms of addressing concerns related to the nondelegation doctrine at the federal level, empowering an agency head (e.g., the Secretary of Labor) with clear standards for whether or not to extend.

The Extension Process

For any sectoral approach that allows extension, the law must establish a process for seeking to have agreements extended by, for example, the DOL.60 That raises questions about what should be submitted by the parties, whether and how to seek input on whether the agreement meets the standards for extension, how those decisions could be appealed, and whether and how employers or workers could opt out from extension.

In terms of what to submit, the parties seeking extension clearly must submit the ratified agreement to the decisionmaking agency, along with proof of successful ratification. In addition, they should provide information that helps the agency assess whether the agreement meets any standards required for extension. Under the Clean Slate proposal, the parties would be required to submit evidence that the agreement advances gender and racial equity; improves the standard of living for a majority of workers in the sector; and provides all workers in the sector with a living wage, an adequate amount of paid sick, family, and vacation time, access to a secure retirement program, and a safe, secure, and healthy workplace. This could include quantitative metrics, qualitative analysis, or even testimony of individuals, for example, outlining and assessing the impact of proposals on marginalized groups within an industry.

The agency could further seek input from workers, employers, and other experts to assess more broadly whether the agreement meets the statutory standards for extension. This could provide greater legitimacy in terms of seeking input and potentially in engaging previously unengaged workers, though it does create an opportunity to derail hard-fought victories.

Some other countries have created mechanisms to seek input on extension. In South Africa, in cases where the representivity threshold for automatic extension is not met, the Labor Minister must publish an invitation to comment on proposed agreements in the Government Gazette (like the Federal Register in the U.S.).61 In France, though the process has been used sparingly over the nearly three years since it was created, the Labor Ministry can take a further step to send the agreement to a group of experts for an opinion, beyond what is legal or not, but to assess the economic and social effects of the agreement.62

Agencies could use similar efforts to gather input on whether to extend in this context. They could also use public hearings or informal listening sessions, both of which could allow more voices to be considered. Regardless of the particular format, it is important that the focus of the inquiry remain about compliance with the standard for extension, not general comments on the agreement itself.

Any extension process must include some provisions for interested parties (on either side) to appeal the agency’s decision. Ideally, the agency will create a multi-step process whereby an initial decision may be appealed (or reconsideration may be sought) within an administrative fact-finding process, thereby creating a streamlined administrative record for expedited appeal under existing administrative law (e.g., federal or state administrative procedures acts). If the agency refuses to extend an agreement, it should nonetheless apply to any employers or organizations bound by its ratification. In addition, the law could provide an opportunity for the parties to return to the bargaining table expeditiously to improve the agreement and resubmit it for extension.

Finally, sectoral approaches considering extension should also consider whether to create a system whereby certain employers can seek exemptions. For example, in South Africa, non- parties to the agreement (including small enterprises) may seek an exemption from the Labor Ministry if they can show that they cannot meet the requirements of the agreement extended through the sector.63 Providing a mechanism for exemptions raises substantial opportunities for abuse. At the same time, it could ease the path to enacting sectoral approaches and could even help raise standards for employees of more profitable businesses in a sector by blunting a source of opposition to strong standards.

QUESTION 8: HOW SHOULD CONTRACTS BE ENFORCED?

Any sectoral system needs to establish mechanisms for parties to assert their rights under the agreement. Workers and even employers may have access to different mechanisms depending on whether they are members of worker or employer organizations that are parties to the bargaining agreements, versus those covered only due to extension of the ratified agreement.

Any members of an organization that is a party to the bargaining agreement should have access to any grievance procedures established by that agreement. Workers should clearly be able to bring claims—supported by their worker organizations—against their employers (bound directly or through worker organizations) through this mechanism. These agreements could presumably be written to allow (signatory) employers to bring claims against (signatory) competitors if they are not abiding by the terms of the agreement.

Regardless, sectoral approaches should, whenever possible, also create opportunities for all employees to pursue their claims—whether or not they are members of signatory worker organizations. In South Africa, for example, bargaining councils can enforce claims. Alternatively, workers could be empowered to file their claims both with administrative agencies and in courts of appropriate jurisdiction, if desired, either directly or on appeal from the bargaining council’s decision.

#### Labor law is key. No other policy option can reverse stagnating wages.

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A combination of all of these nonlabor policies would certainly make a big difference in the US economy and would raise incomes and reduce economic inequality. But the limits of each of the policies suggests that they would not be sufficient, even in combination. Though a quantification of this claim is perhaps not possible, the evidence from abroad also supports the claim that even a combination of nonlabor policies would not be adequate. While neither Canada nor Australia nor Britain has completely implemented all of the types of policies described previously, each has a much more robust safety net than the United States and has adopted critical elements of these policies. Economic inequality, particularly in Canada and Australia, is much lower than in the United States. But in all of these countries wages are still stagnant for many workers and economic inequality rising rapidly, as discussed in chapter 4.

Put bluntly, alternative policies to raise wages for workers do not really obviate the need for labor unions. Rather, unions minimize the weaknesses of these alternatives and help them work better. Moreover, workers engaged in the collective bargaining process gain agency and organization that can provide the support necessary for these policies to be enacted. Indeed, strong labor unions providing political muscle and organizing public support are almost certainly necessary to sustain (over any length of time) policies promoting full employment, a higher minimum wage, robust training, and a more generous safety net. A sudden surge of political activity could compel politicians to enact some of these policies, but power of strong worker organizations is needed to ensure that a broad set of pro-worker policies are enacted, properly implemented, funded, and enforced.

### Advantage 2 – Green Bargaining – 1AC

#### Existing legal frameworks can’t keep pace with escalating climate risk. Sectoral bargaining drives a just transition that scales green clauses into enforceable climate solutions.

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This working paper illustrates the role of collective bargaining as a mechanism towards sustainable reforms aiming at just transition. It provides an overview of how recent literature has covered these issues, as well as insights regarding just transition clauses that were identified from a sample of collective agreements. It also analyses selected case studies in several regions of the world where employers’ and workers’ organizations have negotiated and agreed on just transition measures through collective agreements.

Just transition involves maximizing the social and economic opportunities of climate and environmental action, including an enabling environment for sustainable enterprises, and is based on respect for the fundamental principles and rights at work and effective social dialogue, in accordance with international labour standards (ILO 2023a, para. 12).

The ILO’s work on a just transition follows the organization’s 2015 Guidelines for a Just Transition towards Environmentally Sustainable Economies and Societies for All, which recognizes the link between collective bargaining and just transition, namely that social dialogue, including collective bargaining, can be an important vehicle to implement just transition at the workplace level (ILO 2015). To this end, the Guidelines state that social partners2 should:

promote the inclusion of specific environmental provisions through collective bargaining and collective agreements at all levels, where appropriate, as a concrete way of facilitating cooperation between employers’ and workers’ organizations and encouraging enterprises to comply with environmental regulations, including but not limited to emission reductions, to meet enterprise objectives regarding sustainability and develop the training of workers and managers. (ILO 2015, para. 18(d)).

This study is also a follow-up to the Conclusions concerning a just transition towards environmentally sustainable economies and societies for all, adopted in a resolution by the International Labour Conference in 2023. The Conclusions describe just transition as “the promotion of environmentally sustainable economies in a way that is inclusive, by creating decent work opportunities, reducing inequality and by leaving no one behind” (ILO 2023a, para. 11). They also emphasize that “[u]rgent action to advance just transition is an imperative to achieving social justice, decent work and poverty eradication, and to tackling environmental and climate change. The future of economies, societies, jobs and livelihoods is at stake as they depend on the planet’s ecosystems and natural environments” (ILO 2023a, para. 1). In addition, the Conclusions state that governments in consultation with the most representative employers’ and workers’ organizations should “actively promote freedom of association and inclusive and effective social dialogue, including collective bargaining and tripartite cooperation, at all levels to forge social consensus for ambitious policies and measures for a just transition” (ILO 2023a, para. 21(q)), and that employers’ and workers’ organizations should “effectively engage in social dialogue in all its forms, including collective bargaining, to share the benefits of technological progress, green transition and demographic changes and advance just transition and decent work at enterprise, sectoral and national levels” (ILO 2023a, para. 22(a)).

A 2024 United Nations Framework Convention on Climate Change (UNFCCC) decision on the "United Arab Emirates just transition work programme", also highlights the essential role of social dialogue in advancing a just transition. The decision states that the work programme in question shall include: "Just transition of the workforce and the creation of decent work and quality jobs in accordance with nationally defined development priorities, including through social dialogue, social protection and the recognition of labour rights" (UNFCCC 2024, 31). During the 28th session of the United Nations Climate Change Conference (COP28) in 2023, the ILO and the European Commission demonstrated their commitment to the need for social dialogue in just transition by hosting a Just Transition pavilion together with the International Organisation of Employers (IOE), the International Trade Union Confederation (ITUC) and the UNFCCC, and also organized a high-level discussion that highlighted the nexus between climate change and action, gender equality, inclusion and the world of work.

The concept of a just transition has been increasingly receiving significant attention from trade unions (IndustriALL 2022b; Thomas 2021; ITUC 2022a) and employers’ organizations (IOE 2022), as well as governments, international organizations and academics. This being so, this study explores the literature around innovative practices in collective bargaining aimed at promoting a just transition in the world of work. It reviews debates on the inclusion of just transition clauses in collective agreements, focusing on their impact and controversies. An analysis of the ILO’s database of 512 collective agreements3 provides also insights into the presence and scope of just transition clauses in such agreements, and to deepen the understanding, six case studies were developed, analysing specific agreements beyond the ILO database. These case studies highlight the opportunities, challenges and rationale for negotiating just transition clauses, along with the processes and results identified by the parties involved. Together, the review, the database analysis, and the case studies contribute to understanding how collective bargaining can support a just transition, emphasizing both best practices and areas for improvement.

This working paper provides a basis for discussion, further debate and research on the role of collective bargaining for just transition.

Literature review

This literature review of the role of collective bargaining in the development of just transition sets out some of the key areas that have been explored to date. Although extensive literature searches in all regions were carried out, most of the literature identified and examined originated in Europe and North America, with a few contributions from Asia, South America and Africa.

1.1 Key topics on just transition in collective agreements

To date, much of the literature has focused on the more general principles of just transition and how they might be embedded in different settings, including under the scope of social dialogue in general. The examination of just transition within collective agreements – as an outcome of collective bargaining – has received considerably less attention. Nevertheless, there are useful databases4 that document what are described as “green clauses” within collective agreements. Studies that have analysed the content of collective agreements and green clauses or just transition clauses have found a wide degree of heterogeneity with regard to the topics covered (Markey and McIvor 2019; Goods 2017; Bugada et al. 2020; Chacartegui Jávega and Canalda Criado 2021).

The most salient topics in the just transition clauses were:

green pilot projects;

training and education on just transition;

employee green code of conduct/compliance;

protection from extreme weather conditions;

environmental reporting/measuring;

recycling initiatives;

providing financial incentives to workers to use public transport;

whistle-blower protection in the context of environmental issues;

right to refuse work in the event that workers deem the work to be dangerous for the environment (for example, pollution or biohazards);

green reinvestment; and

green procurement.

Specific topics on representation and consultation of workers under the scope of environmental issues included:

establishment and operation of workplace environmental committees;

regional/national environment committees;

rights and obligations of representatives of environmental committees;

environmental consultation/information sharing; and

commitment between social partners to environmental improvement.

Topics such as skills, worker consultation, social dialogue and trade union representation are key areas that appear in collective agreements and are central principles that can help facilitate just transition.

Another emerging topic within collective agreements is the adaptation of work practices within the context of climate change, such as extreme heat, and how this may be managed (Newman and Humphrys 2020). In the past, extreme heat was primarily a concern in areas such as South and South-East Asia, Australia and Oceania, Sub-Saharan Africa and parts of South America, but now other areas, such as North Africa, Southern Europe and North America, are increasingly concerned as well. The 2024 ILO reports Ensuring Safety and Health at Work in a Changing Climate and Heat at Work: Implications for Safety and Health include several examples of collective agreements that have resulted in improved occupational safety and health protection for workers in various industries in a changing climate, including in relation to heat-related risks in the workplace. Examples along these lines mentioned in the reports include the general collective agreement for the construction sector in Spain and the national collective agreement for the construction sector and related industries in Greece, as well as a collective agreement in the shipping company UPS. The reports also refer to collective agreements that deal with extreme weather conditions, such as a regional collective agreement in the Vaud Canton of Switzerland to protect construction workers from snow, heavy rain or extreme cold. Another example is a collective agreement in Spain that aims at protecting firefighters’ exposure to carcinogens during wildfires.

At the sector level, the fossil fuel extraction and energy sectors have garnered the majority of research attention, but other industries have also emerged as key areas of focus for collective bargaining and just transition initiatives, such as:

manufacturing – particularly automotive manufacturing (IndustriALL and Just Transition Centre 2021; Galgóczi 2019);

construction (Clarke and Sahin-Dikmen 2020; Calvert 2023);

food production (Blattner 2020; IUF 2022); and

transportation (Maritime Just Transition Task Force 2022; ITF 2022).

1.2 Level of collective agreements

Overwhelmingly, the literature cited above underscores that collective agreements in support of just transition happen at the enterprise or sectoral level. Nevertheless, there is evidence that collective agreements in support of just transition also occur at the national level (Johansson 2023; ETUC 2021; Bugada et al. 2020; IndustriALL 2022a).

Similarly, there are emerging joint initiatives between social partners at the international level to introduce just transition principles. For example, in 2021 the International Chamber of Shipping, the International Transport Workers’ Federation, the United Nations Global Compact, the ILO and the International Maritime Organization created the Maritime Just Transition Taskforce during COP 26. In November 2022, the Taskforce published a report detailing how a just transition for maritime workers could be secured (Maritime Just Transition Task Force 2022). According to the Taskforce report, it is central for a just transition to develop consensus around decarbonization through social dialogue. Once consensus is reached, the focus needs to shift to recruitment, labour force attrition, and the skills and training required to decarbonize the shipping industry.

This strong and growing focus on skills and just transition is also reflected in collective agreements at the national level – for example, in 2022 a collective agreement in Sweden on skills related to just transition was signed by the Confederation of Swedish Enterprise, the Council for Negotiation and Cooperation and the Swedish Trade Union Confederation. The agreement provides “individuals who are employed or in-between jobs the right to financial support for shorter or longer training courses to develop their skills” (IndustriALL 2022a). Financial support from the Swedish Government provides significant replacement wages for current workers while they upskill or retrain for jobs in the green economy. This reflects both a recognition of, and response to, the significant upskilling and reskilling needed to meet the climate transformation, and shows that skill development is an essential part of just transition agreements.

National and international agreements can also support collective agreements at the sectoral or enterprise level (Olsen 2010; Stevis and Felli 2015). However, the legality and enforceability of agreements at the transnational and international level is seen as a limitation (Fichter and McCallum 2015). While there is significant evidence of clauses and collective agreements supporting just transition in different regions and across different settings, evidence concerning the degree of coverage of these agreements is limited.

1.3 Linkages between collective bargaining and just transition

ILO fundamental Conventions on freedom of association and the right to collective bargaining

Freedom of association and the effective recognition of the right to collective bargaining are prerequisites for any form of social dialogue. The Freedom of Association and Protection of the Right to Organise Convention, 1948 (No. 87), requires that “workers and employers, without distinction whatsoever shall have the right to establish and … to join organisations of their own choosing without previous authorisation” (Article 2).

The Right to Organise and Collective Bargaining Convention, 1949 (No. 98), obliges Member States “to encourage and promote the full development and utilisation of machinery for voluntary negotiation between employers or employers’ organisations and workers’ organisations, with a view to the regulation of terms and conditions of employment by means of collective agreements” (Article 4). The ILO supervisory bodies regularly emphasize the essential role of Conventions Nos 87 and 98 in enabling mature industrial relations and fostering social justice. By 2024, Convention No. 87 has been ratified by 158 Member States, and Convention No. 98 has been ratified by 168 Member States.

Note: For more on the implementation of Conventions Nos 87 and 98, see the database of the Committee on Freedom of Association (CFA).

The link created between collective agreements and just transition provides an important regulatory space for environmental and social justice issues to be interlinked (ILO 2022b; Bosch 2023). Just transition challenges are particularly significant in industries where the impact on the climate is most immediate, that is, among industries that have the largest carbon emissions. Thus, many countries with significant coal or coal-fired power industries have received the greatest attention in the literature, such as Australia (Snell 2018), China (Wang and Lo 2022), Germany (Kalt 2021; Reitzenstein, Schulz and Heilmann 2020), South Africa (Kalt 2022), Spain (Sanz-Hernández et al. 2020) and the United States of America (Hess, McKane and Belletto 2021). This is perhaps unsurprising given two interconnected factors. First, coal and coal-fired power generation are at the centre of just transition discussions and policy due to climate action and technological shifts – primarily towards renewable energy. Second, the coal and energy sectors present a relatively higher unionization rate in some countries, and are therefore more likely to see collective bargaining between employers and trade unions. To varying degrees, collective agreements have contributed to each of the transitions already undertaken or currently in progress.

As will be seen in section 3.1.1 below, Germany is commonly cited as an interesting example when it comes to collective bargaining contributing to a successful just transition. In Australia, however, collective bargaining and agreements on just transition are less common. The most important factor for this is a tradition of conflictual industrial relations, which has resulted in just transition being viewed by some social partners and impacted workers as illusionary (Snell 2018). Thus, while collective bargaining can support just transition principles and actions, the institutional context, state support, industrial relations culture, strength of the trade union movement and employers’ organizations, and institutional practices can be significant factors impacting the effectiveness of just transitions.

The most significant underlying limitation of collective bargaining on just transition is that the principles underpinning just transition – namely social dialogue and recognition that actors’ mutual interests are best addressed through common action – are often not present (Giupponi 2023; Snell 2018). While the term “just transition” might be mentioned in collective agreements, the clauses in these agreements often leave room for interpretation on what concrete actions need to be taken to achieve such a transition. Critically, because the words “just transition” have been adopted within these vague circumstances, the concept itself may increasingly be viewed with scepticism (Houeland and Jordhus-Lier 2022; Banerjee and Schuitema 2022; Gärdebo 2022).

1.4 Macroeconomic and growth policies

The literature on the interconnection between macroeconomic policies and just transition has focused on what has been termed “green new deal” policies or “green Keynesianism”, often in the context of economic recovery or growth agendas (ILO 2021a), where state policies seek to stimulate investment in new green industries or in greening existing industries (Cha et al. 2022; Galvin and Healy 2020; Bosch 2023). Emerging research has also suggested that green financial instruments such as carbon taxes, cap-and-trade schemes or green bonds can help support a growth-oriented just transition (Braga and Ernst 2023). Equally, there has been some debate around “post-growth” and “degrowth” and their interconnection with just transition (Keil and Kreinin 2022; Hickel 2020; Brand and Niedermoser 2019). To date, however, the connection between macroeconomic policies, just transition and collective agreements has not been a focus of research. However, what clearly emerges from this working paper’s six case studies of collective bargaining supporting just transition (see Section 3 below) is the role played by macroeconomic and/or international, national or regional climate policy shifts. For example, and most typically, the development of closure plans for fossil fuel industries (coal, coalfired power and so on) – which is often linked to climate regulations – is the impetus for just transition policies and collective agreements in these sectors. This interconnection between cessation of operations and just transition has led some to suggest that the focus needs to switch to “just cessation” (Flanagan 2023).

South Africa offers an interesting example of the interplay of global and national and growth policies and the subsequent search for a just transition. Since 2011, trade unions in South Africa have advocated for a just transition plan to be embraced as the South African coal and coalfired power sectors faced major challenges and closures (Kalt 2022). However, it was not until 2020 that a Presidential Climate Commission was established, and in 2022 at COP 26, a Just Transition Energy Partnership with US$8.5 billion in climate financing among high-income countries and South Africa was announced (ITUC 2022b). Later that year, the South African Government released the report A Framework for a Just Transition in South Africa (South Africa, Presidential Climate Commission 2022), which committed to working with social partners in the development of just transition principles in energy transition. As part of this project, the state-owned energy company Eskom and trade unions established just transition principles through social dialogue, including transfers of workers to other Eskom projects and operations, skills and training programmes to shift to new industries such as renewable energy, voluntary separation packages, and ongoing employment in the decommissioning of coal power plants. While these actions sound uniformly positive, green financing combined with energy privatization plans have seen trade union support for the transition and the Just Transition Energy Partnership fade (Valentin and Steinfort 2023; ITUC 2022b).

1.4.1 Principal motivations of workers’ and employers’ organizations for just transition

There is potential for expanding knowledge on the goals of employers’ organizations engaged in negotiating just transitions (Moussu 2020; Goods 2022; Goods and Ellem 2022). In general, the principles driving positive employer engagement are:

meeting national and/or international carbon emission regulations;

brand reputation;

consumer demand/expectations;

staff development/skills and training;

staff retention;

reducing costs (for example, energy costs, resource efficiency); and

new market opportunities (Just Transition Centre and The B Team 2018; IOE 2022; ILO 2022b).

The motivations for workers’ organizations have been covered more extensively within the literature.5 The major themes uncovered in this literature focus on just transition as an important mechanism or strategy for trade unions to work through the inherent tensions brought about by climate action and its impacts on trade unions and trade union members. That is, climate action without just transition principles can destroy jobs, livelihoods, industries and communities, and thus just transition provides a framework to limit these negative outcomes for workers and trade unions. With collective agreements, trade unions prioritize the following key objectives:

strengthening collective bargaining;

employment/job security;

workers’ protection including through financial compensation for those impacted;

skills development of workers, including reskilling;

retraining and retention programmes; and

decent job creation to create new job opportunities and support communities.

The other motivation for trade unions concerns trade union identity and purpose, and centres around how climate change confounds existing trade union practices and requires trade unions to do things differently. Engaging with the challenge of just transition can therefore widen the objectives of trade unions and expand how they meet the needs of their members beyond the workplace through engagement with other actors (Snell and Fairbrother 2011; Rathzel and Uzzell 2013; Cha et al. 2022; Thomas 2021; Hultgren and Stevis 2020).

Workers’ organizations have also developed useful guides for just transition, which underscore these priority areas.6

1.5 A gender perspective on just transition

What also emerges from the literature is that just transition is currently highly gendered (ILO 2024; Fredman 2023; Cohen 2017). To date, the literature focuses almost exclusively on industries where the workforce is male-dominated (energy and mining), and the focus on developing green industries and green job opportunities is also predominately centred on male-dominated industries, such as renewable energy, construction and manufacturing (Masterman-Smith 2010; Cohen 2015; Ravenswood 2022; Acha 2016). While some of the literature calls for just transition processes to combat gendered labour market segregation (Maritime Just Transition Task Force 2022), this is not common. Indeed, the criticism from within the literature is that the green economy is replicating the same gendered labour market segmentation as the “old economy”. The gendered nature of current just transition research and practice also points to a larger issue, which is that much of the female-dominated “low environmental impact work” that needs to be supported and grown as part of a just transition – such as education, care work and health services – is largely ignored in the literature (Ravenswood 2022). Revaluing and upgrading work that is highly gendered and frequently undervalued could be a key driver of successfully achieving just transitions. This could mean improving the working conditions in these industries for existing workers, but also diversifying the focus of just transition policy and action beyond energy, construction and manufacturing. Collective agreements could be a key driver of such upgrading. One example of a collective agreement that addresses both just transition and gender equality is the French National Interprofessional Agreement on Green Transition and Social Dialogue (2023),7 which commits the parties to raising awareness on green transition and emphasizes the need to adopt a gender-sensitive approach to social dialogue.

1.6 Issues arising in collective bargaining processes

There is limited literature on explicit challenges surrounding the negotiation of agreements around just transition (Markey, McIvor and Wright 2014; Chacartegui Jávega and Canalda Criado 2021; Bugada et al. 2020; Lambropoulos 2009), and indeed, some of the challenges are not significantly different from those experienced in any collective bargaining between social partners. The legal frameworks and institutions within each country are an important factor, with some evidence that collective bargaining around environmental issues is a legal grey area within some jurisdictions (Arabadjieva et al. 2023; Giupponi 2023; Novitz 2023). This also connects to a common challenging aspect of bargaining around just transition, which is financial responsibility, with the more successful examples of both negotiations and just transition outcomes involving significant state coordination and financing (Bosch 2023; IndustriALL 2022a). The other key issue relates to enforcement, which can be challenging in settings with less mature industrial relations institutions.

Just transition provisions in collective agreements: Similarities and differences across sectors, enterprises, countries and regions

The available literature enables one to differentiate between sectors where transition is primarily a process of phasing out (fossil fuel/fossil fuel-based energy generation) versus sectors where transition involves the implementation of new work practices, skills and technology (transport, manufacturing, agriculture). In what can be labelled as “phasing out transitions” there is a strong focus on retirement assistance, job placement and re-training. While in transitions towards sustainable economies, also referred to as “technology switching transitions”, the focus is on clean technology adoption,8 with a concomitant emphasis on skills development, retention and apprenticeship programmes. Technology switch transitions might also be facilitated by macro policies aimed at fostering structural change (for example, the energy tax in Germany aimed at lowering pension contributions and financing green investments). There is also a stark difference in countries and/or industries that have existing social dialogue frameworks and those where such frameworks are not part of normal industrial relations practice. The former are more likely to forge collective agreements on just transition that embed strong ongoing social dialogue mechanisms; whereas in the latter contexts, interactions with trade unions during the development of just transition arrangements are usually framed as “worker consultations”, with ongoing dialogue less likely to be a feature.

Implementation of just transition clauses in collective agreements

The literature review underscores that there is a need for research that monitors just transitions over time, including the implementation of just transition clauses in collective agreements. Central to maintaining the implementation of just transitions are legal protections through collective agreements as well as strong labour market institutions.

Analysis of just transition clauses in collective agreements

An analysis of the ILO’s database of collective agreements was carried out with a view to contributing to a better understanding of the presence and scope of clauses on just transition in the 512 collective agreements included in the database. This analysis sought to address questions such as:

What key topics on just transition can be found in collective agreements?

At what level are those collective agreements signed? That is, are the signed at the enterprise/establishment/plant level, the industry/sectoral/branch of activity level, the territorial or national level, the occupational level or the interprofessional level?

In which ways can collective bargaining contribute to a just transition, and what are the underlying limitations?

Can similarities or differences regarding just transition provisions in collective agreements be identified?

Further details on the methodological steps, as well as an overview of results, can be found below.

2.1 Methodological steps

The agreements found in the ILO’s database of collective agreements originate from several regions and were mostly concluded during 2020–21. The analysis of the collective agreements in the database relied on three main steps: the first was a word frequency query; the second was the elimination of false positives; and the third was manual coding of results based on a textual analysis.

The word frequency query using a set of 25 keywords related to just transition (see annex table 1 in the Annex to this paper) was run to search the database of collective agreements. Relevant clauses were identified and irrelevant results (false positives) were removed. The remaining clauses were then manually coded based on textual analysis using all the keywords. Another parallel search in the same database was carried out to identify collective agreements that contained clauses on occupational safety and health (OSH) with specific references to just transition or to the impact of environmental changes in the health and safety of workers and enterprises.

2.2 Overview of results

Clauses related to just transition were found in 58 (11 percent) of the 512 collective agreements that form the ILO database.9 These 58 agreements originate from diverse regions of the world including Europe, Asia and Pacific, and the Americas. The great majority of the collective agreements with clauses on just transition (46 out of 58) contained clauses that can be considered to only be of a “declarative nature” (table 1); that is, they commonly reflect broad agreements between labour and management regarding compliance with environmental legislation or the implementation of measures aimed at a reduction of the ecological footprint, but they lack measurable or objective goals.

Nevertheless, 12 out of the 58 identified collective agreements contained clauses of a more transformative nature in the context of just transition, and therefore do have measurable goals that offer the possibility of driving meaningful change. These agreements were signed in five countries at the enterprise level (six agreements), at sector level (five agreements) or at national/interprofessional level (one agreement). In addition, the 12 agreements belong to different economic sectors, including manufacturing, information and communication, public administration, energy, and health services (see table 2).

The relevant transformative clauses in these 12 agreements covered an array of topics within the scope of just transition, which could be organized as follows:

Sustainable commuting, including through alternative means of transportation for workers (such as public transport or bicycles).

Hybrid work or telework aimed at contributing to environmental protection (reducing carbon emissions from commuting).

Development and training for the upskilling of workers and managers under the scope of just transition, including through investment in research and new technology.

Working time organization that considers adverse work conditions such as extreme heat.

Provision of eco-friendly products at the workplace and fostering recycling and reuse (for example, reusable water bottles, adaptation of canteen menus, favouring the purchase of local products and so on).

Payment of supplements to the base wage, such as vouchers for the purchase of ecological products and services (for example, energy-saving appliances, vehicles providing environmentally friendly mobility and so on).

Avoiding pollution, minimizing waste, rationalizing the use of natural resources and reducing emissions into the atmosphere.

Raising awareness and disseminating information about environmental issues.

Annex figure 1 presents a graphic visualization that aims to systematize and summarize some key aspects of this set of 12 collective agreements with just transition clauses.

[Table 1 Omitted]

[Table 2 Omitted]

Regarding the results of the additional search in the database to identify clauses on OSH, 17 collective agreements out of the 512 in the database were identified as containing specific references to just transition or to the impact of environmental changes in the health and safety of workers and enterprises.10 This set of 17 collective agreements covered subjects such as:

Establishment of bipartite environmental committees at the enterprise level or inclusion of environmental/sustainable development issues in existing OSH committees.

Fostering shorter commuting times to reduce workers’ fatigue and ecological footprint.

Job descriptions referring to environmental protection and health and safety.

Coordination across integrated companies on environmental issues.

Provision of rehydration drinks during the warm season.

Payment of supplements to the base wage for workers who live in “ecopoverty zones”.

Raising awareness and providing training on environmental/sustainable development issues.

Annex figure 2 displays a graphic visualization that aims to systematize and summarize some key aspects of the OSH/just transition clauses that were found in this set of 17 collective agreements.

2.3 Conclusions

Most of the collective agreements in the ILO database that contained clauses on just transition were of a declarative nature, while only a small portion reflected clauses of a more transformative nature. To complement this analysis, six case studies were selected from outside the scope of the ILO database of collective agreements for further study in the section that follows.

Collective bargaining and just transition across six case studies

In this chapter, six case studies from Chile, Germany, Ghana, India, the Republic of Korea, and the United Kingdom of Great Britain and Northern Ireland are drawn upon to explore the extent to which just transition practices are emerging within collective bargaining. This section gives an overview on collective bargaining and just transition in the countries of the selected case studies, the key areas of focus, the strengths and weaknesses of the approaches, and what opportunities exist to improve some practices. The evidence from the six case studies underscores that there is a high degree of heterogeneity in terms of how collective agreements are negotiated by employers and their organizations and workers’ organizations and in regard to the level of detail found in the just transition clauses within the agreements.

The use of collective bargaining to support just transition practices are evident across the six case study countries. However, such practices still remain nascent and restricted to a small number of cases within each country. The most comprehensive linking of collective bargaining to just transition practices is associated with institutional contexts where tripartite social dialogue and collective bargaining have long been established and state polices play a central coordinating role. One example would be the Germany case study (section 3.1.1), where strategic long-term planning between employers’ and workers’ organization and other stakeholders led to laws regulating Germany’s phase-out from lignite, a low-quality form of coal, often referred to as “brown coal”. The laws in Germany also provided incentives for social partners to use collective bargaining to regulate just transition through collective agreements. In all of the other case studies, leadership from a trade union or an employer at the enterprise level has been the primary driver of the adoption of just transition practices or principles within workplace agreements. These agreements include dialogue through establishing environmental committees, expanding the scope of existing committees (occupational, health and safety) and/or referring to reducing the environmental impacts of the enterprise.

The barriers to expanding and deepening just transition within collective bargaining are often context-specific. Nevertheless, there are common challenges, such as:

Strong tripartite social dialogue is generally not well established.

There is limited state recognition and support for the role that industrial relations must play in the transition to a low-carbon economy;

There is limited awareness and education around just transition from workers, trade unions and employers.

There is a lack of evidence establishing the link between collective bargaining and climate action.

These limitations and evidence from the case study countries point to key opportunities, most particularly around education and establishing a stronger research base for the relationship between collective bargaining, just transition, climate action and mature industrial relations.

3.1 The six case studies

3.1.1 Germany case study: Collective agreement in the lignite industry

Background

In Germany, trade unions and employers and their organizations play a significant role in various advisory and coordination bodies at the national level that are pivotal for just transition.

The green transformation and the digitalization of the economy, which is referred to as “Industry 4.0” in Germany,11 are associated with considerable risks for workers. Workers may lose well-paid jobs, and their skills may be devalued. These risks are particularly pronounced in countries with dualized labour markets, such as Germany, where good working conditions are only secured in the primary segment of the labour market (Bosch 2023). Industry 4.0 and the successful decarbonization of industry stand out as pivotal macroeconomic policy endeavours for achieving sustainability while bolstering the competitiveness of German industry. At the forefront of this effort is the Industry 4.0 platform within the Federal Ministry of Economics, comprising representatives from businesses, academia and the metal industry trade union (IG Metall).

Germany also created an Alliance for Work and Environment, which focuses on employment creation through the founding of a new industry (namely, making buildings energy efficient) rather than on the phase-out of an industry. Furthermore, the “Coal Commission” (Commission on Growth, Structural Change and Employment) was created to foster growth and employment through structural change, including the socially responsible phase-out of lignite by 2038 (Bosch 2023). The Coal Commission consists of representatives from:

trade unions, namely the German Trade Union Confederation, the Chemical Workers' Union (IGBCE) and the services trade union ver.di (Vereinte Dienstleistungsgewerkschaft);

employers’ and their organizations;

Members of Parliament;

academics; and

NGOs.

Key information on industrial relations in Germany

In 2019, the overall trade union density rate in Germany was 16.3 per cent, and the collective bargaining coverage rate was 51.8 per cent (ILO, n.d.-a; ILO, n.d.-b). The 2019 collective bargaining coverage rate represents a substantial decrease from the 85 per cent rate seen in 1985 (in West Germany). The reasons for this are the deregulation of product and labour markets, the fragmentation of companies through outsourcing, the increase in non-standard forms of work, the dissolution of classic working-class milieus and the declining trade union density, which fell from 35.5 per cent in 1978 in West Germany (Visser 2019) to the aforementioned 16.3 per cent in 2019.

However, both trade union density and collective bargaining coverage are high in sectors that are particularly important for just transition, such as mining and energy (over 75 per cent in 2022). In lignite mining, trade union coverage was around 90 per cent in 2022 (Bosch 2023). The mining and energy sectors also have a high prevalence of works councils, which hold the rights of access to statutory information, consultation and co-determination. Seats on supervisory boards are apportioned equally between shareholder and employee representatives in companies above 1,000 employees. Collective bargaining primarily occurs at the industry level. The trade union movement is unitary, meaning there is only one confederation at national level. Negotiations on a fair and inclusive structural change have a long tradition in these sectors. In the metal and electrical industry, numerous "future collective agreements" have been negotiated in recent years to shape the transformation, and primarily aim at socially acceptable internal change.

Collective agreements on the fair and inclusive design of the green transformation and the digitalization of the economy are only negotiated in sectors with high collective bargaining coverage and strong trade unions.

Case study

In Germany, collective agreements supporting just transition are present in industries such as mining, energy and manufacturing. This case study focuses on the collective agreement on the phase out of the lignite industry that was signed in 2021, which is one of the most prominent examples of a collective agreement supporting just transition.12 About 8,000 workers are covered under this agreement.

The contents of this collective agreement are outlined below and it essential to understand the context in which the agreement was established.

In 2020, the Government (both at federal and at state level), after a process of wide consultation and social dialogue, mandated the closure of lignite-fired power plants by 2038, which contribute 70 per cent of carbon dioxide (CO2) emissions in the Germany energy sector. This was a political decision, and since the phase-out means an intervention in profitable private companies, the companies receive compensation from the Government. At the same time, policymakers wanted to ensure security of supply in electricity production until the end of phase-out. The phase-out decision was underpinned by significant financial support for adjustment allowances for early retirement of employees, structural adjustment funding and regional development projects.

Alongside this government support, the major lignite companies and trade unions developed sector-level coordination of the lignite phase-out in which the parties committed to key principles, such as prohibiting compulsory redundancies, increasing the adjustment allowances, supporting younger workers not covered by adjustment allowances into comparable jobs, and providing transferred workers with training. These sectoral commitments are underpinned by company-level collective agreements that formalize these core principles, but also contain further clauses concerning maintaining apprenticeship programmes, more comprehensive severance agreements, training and placement of workers in comparable jobs.

Examples of just transition clauses within the collective agreement

The entire collective agreement is dealing with just transition. Below are some of the most important clauses of the agreement.

The statutory adjustment allowance, which is roughly equivalent to the individual pension, will be topped up so that workers receive 60 per cent of their gross salary, which is usually equivalent to 80 per cent of their previous net salary.

Workers who accept the adjustment allowance within 14 days will receive a fixed bonus.

The company pension (which is paid in addition to the statutory pension) is calculated based on the last salary prior to the receipt of the adjustment allowance and is increased during the period of receipt of the adjustment allowance in line with the salary development of comparable employees.

To ensure that all employees who are eligible for an adjustment allowance can leave, transfers are necessary. Transfers to reasonable jobs are to be accepted. Once the reasonableness of the transfer has been determined by a joint commission, workers may be dismissed without severance pay if they refuse the transfer.

In the event of termination of the employment contract by mutual agreement, severance payments are made, the amount of which is determined by age, length of service and social factors.

From 2023 to 2025, the same number of apprentices will be hired as before. A training quota of 5 per cent is guaranteed for 2026 to 2030. Apprentices will receive a fixed-term contract of at least one year after their training and will have priority in filling permanent vacancies in the company.

Employees who are not covered by the adjustment allowance are to be placed in another job without a time break. Individual qualification needs are to be developed through profiling and the necessary qualification is to be carried out at the company's expense. An advisory board with equal representation of members of the works council and the company, which is to be established from 2026, is to accompany the process described.

Employees who were employed by the company on 30 September 2019 and who cannot be placed after these measures have been completed have the option to move to a transfer company for one year with a payment of 80 per cent of their net salary and a payment of 50 per cent of their severance entitlement. Employees who were hired after this cut-off date have a lower severance entitlement.

Outcomes

Monitoring of the implementation of the agreement is led by social partners, just like collective bargaining itself. To date, adjustment allowances have already resulted in many workers leaving the industry, while apprenticeship programmes have been maintained. Indeed, one of the challenges is maintaining adequate levels of trained staff to ensure the smooth shutdown of the lignite-fired energy sector. This is partly being managed by increasing training. As the case study observes, the collective agreements and social dialogue supporting the just transition of the lignite industry are built on longstanding and strong social partnerships and underpinned by significant financial support from the State. The good social protection of workers during early phase-out and their transitions to new employment would not have been conceivable without the strong social partnership and co-determination in this industry. The collective agreements at the company level and their implementation within each company exemplify long-term, forward-looking human resource planning. While the phase-out of environmentally harmful coal production has not been met with widespread enthusiasm, it has at least garnered the acceptance of both the companies and their employees due to the strong social measures.

It is noteworthy that the Government will only subsidize the phase-out in an industry that provides essential goods. Other sectors can benefit from “qualification subsidies”, which are provided for major company transformation in non-essential segments of society. The chances of similar just transition agreements being replicated across other countries are therefore uncertain.

3.1.2 United Kingdom case study: Joint Environment and Climate Change Agreement

Background

In 2023 the Government of the United Kingdom committed to ensuring that the country becomes more energy independent by diversifying, decarbonizing and domesticating energy production, with the aim of doubling electricity generation capacity by the end of 2030s. This trajectory is aligned with the goal to decarbonizing the power sector by 2035 – subject to security of supply (United Kingdom, Government of the United Kingdom 2023, 19).

At a national level, the Trade Union Congress (TUC) has produced a comprehensive guide to support their affiliates to develop workplace agreements around climate change and just transition, with a strong focus on the creation of elected “green representatives” in the workplace (TUC 2008).13 UNITE, the second largest trade union in the United Kingdom, also developed an Environment Charter in 2021 that calls for the decarbonization of workplaces, industry and society; job guarantees as part of the just transition; and for workers to lead just transitions (both locally and internationally).14

On the employers’ side, the Confederation of British Industry (CBI) has been engaged in driving sustainable growth through campaigns that support their members in this commitment.15 The CBI, together with other business organizations, have also produced a joint report that sets a framework aiming at better collaboration between the Government and businesses towards a carbon neutral economy.16

Key information on industrial relations in the United Kingdom

In 2019, trade union density in the United Kingdom was 23.4 per cent, and collective bargaining coverage was 26.9 per cent (ILO, n.d.-a; ILO, n.d.-b). The United Kingdom’s industrial relations system became increasingly fragmented between the 1980s and the 2020s. However, coverage and density remain relatively high in the public sector, where the present case study is set.

Case study

The case study focuses on the Joint Environmental and Climate Change Agreement (JECCA) between the local government of the Borough of Stockport17 and the public sector trade union UNISON (which operates across the United Kingdom). This was one of the first bipartite collectively agreed frameworks for climate action within UK local government.

The JECCA built on the longstanding commitment of senior officers, politicians and trade union actors towards a just transition, while also articulating a clear role for UNISON in overseeing its implementation, including delivering carbon literacy training.18

As with other JECCAs, this agreement includes clauses that focus on two issues. First, it establishes a joint commitment from both the trade union and management to reduce environmental impacts. Second, it develops mechanisms to support ongoing workplace decisions around environmental impacts – often through the development of green representatives.

Several long-running projects and activities led by different actors across Stockport – such as promoting cycling and reducing emissions across the borough – preceded the signing of the agreement, which was ultimately realized quickly and on the basis of general consensus.

Examples of just transition clauses within the collective agreement

The Stockport JECCA starts with a joint commitment by the parties to “encourage managers, staff and trade union environmental representatives to share responsibility for ‘greening’ the workplace”. The parties also acknowledge that they “will work together through constructive dialogue on how to achieve these goals”, that the necessary changes will be gradually implemented and that there will be “regular monitoring of environmental impacts … particularly carbon impacts”. The agreement tackles just transition in several dimensions, including energy use, recycling, resource use and transport. Under the scope of energy use, one of the clauses aims at “ensuring purchases meet the latest energy and environmental standards, are sourced from suppliers with good employment and environmental standards”, and another clause encourages “energy-saving measures in those aspects of the operation that are most energy intensive”. On recycling and resource use, the parties will continually seek ways to “minimise the use of resources including energy, equipment and goods such as non-recycled raw materials” as well as “purchasing supplies from sustainable sources – i.e., sources that are local where possible, accredited under a formal environmental management system”. Concerning transport, one of the clauses in the agreement mentions that the parties will work together to provide “work cycling incentives such as a mileage allowance and tax-free bicycle purchase scheme for work use” and “reduc[e] the impact of the ‘grey fleet’, both essential and casual car users, in relation both to commuting and work journeys such as through the introduction of low emission pool cars”.

The JECCA formalized trade union environmental representatives within workplaces and committed the local authority to honouring working time for trade union duties specifically relating to environmental issues.

Outcomes

The outcomes of the Stockport JECCA are in three key areas:

carbon literacy training for staff and management at all levels in the workplace;

raising awareness of environmental issues via green representatives and/or joint management worker committees; and

improving environmental impacts through “win–win” solutions (reducing energy demand, waste and water usage – among others – and therefore reducing costs).

In addition, the agreement enabled mechanisms of representation to bring any environmental concerns to senior officials in the council through bi-monthly meetings. This feature became vital during the years after the JECCA was first signed, when political leadership changed, a number of senior managers moved on or retired, and there were local changes within the trade union branch.

The Stockport JECCA was seen as a model example for other local authorities to follow and helped consolidate the emerging national system of environmental representatives within the UNISON trade union.

3.1.3 Chilean case study: Collective agreement in Santiago Metro Train

Background

In December 2021, Chile published the Strategy for a Just Transition in the Energy Sector, which targets the replacement of fossil fuels in the different sectors of the economy, such as transport, power generation, mining, industry, commerce and buildings. The strategy aims at fair and equitable social and environmental development, promoting the creation of jobs that improve people's quality of life while seeking to retrain workers impacted by the closures and/or new uses of coal-fired power plants in the country (Chile, Ministry of Energy 2021).19

Key information on industrial relations in Chile

According to the most recent ILO data, the trade union density rate in Chile in 2018 was 17.1 per cent, and the collective bargaining coverage rate was 21 per cent. The private sector has limited collective bargaining coverage, and the public sector has much higher trade union density and collective bargaining coverage (ILO 2018). The trade union movement is highly fragmented, with around 9,000 trade unions in the private sector alone. Collective bargaining primarily occurs at the enterprise level.

Case study

Just transition clauses in collective agreements are limited to a few cases in Chile. One such example is the Santiago Metro Train enterprise level agreement of 2022, which covers all the workers of the company and is the subject of this case study. Santiago Metro Train is a public owned company in which almost all workers are unionized.20

The focus of the just transition content in this agreement is the establishment of a bipartite committee to engage in social dialogue over the automation of the expanding rail network in the city of Santiago, which is a critical move towards a low-carbon transport future. The collective agreement states that the bipartite committee is composed of representatives from the employer and from the Federation of Metro Unions.21

Just transition clauses were initially proposed by the company’s trade union and welcomed by the employer, which identified the topic as crucial in terms of relations with the workers and also terms of the company’s responsibility towards the environment.

The Federation of Metro Unions provided the company’s trade union with access to research and information on just transition as well as guidance regarding the drafting of the clauses as a basis for the collective agreement negotiation. Through the Federation, the company’s trade union was also able to engage in exchanges with other trade unions in the public transport sector at the local22, national and regional levels23 in Latin America as well as with the International Transport Workers’ Federation. These regional and international contacts fostered dialogue and coordination on transformations associated with just transition and technological change, as well as expanding the company trade union’s knowledge on strategies that would help them to, at least partially, overcome limitations related to organizational and institutional power resources.

The employer carried out similar endeavours, including by integrating a task group that gathered together metro companies from Latin America,24 Spain and Portugal to share experiences and promote knowledge, leading to the implementation of best practices among members. Employer representatives view just transition clauses as an example of social dialogue that strengthens trust between the employer and the trade union based on voluntary negotiations rather than legislative action. However, given that metro workers generally have long years of service in familiar roles, there was a certain apprehension on the part of the employer about the workers’ capacity to adapt to new processes and new technologies.

Examples of just transition clauses within the collective agreement

As noted above, the parties to the Santiago Metro Train collective agreement agreed to form a bipartite committee “composed of representatives of the company and trade union representatives of the Federation of Metro Unions in equal proportion of participants”. One of the clauses in the agreement25 defines the committee as a “body for the democratization and inclusion of workers” that may channel their participation “so that they can express their concerns and problems regarding the technological implementation or operational modifications” while “tending to cancel or at least diminish the negative impact on workers”. Furthermore, the clause describes the committee’s mission as “to agree, study, investigate, reach consensus, negotiate and incorporate the participation of workers in the different projects of technological change and/or digital transformation that occur within the company”. The clause is further supplemented by more concrete actions that can be taken by the parties, such as generating “measures and mechanisms for compensation, training, retraining, capacity development and reconciliation of work and personal life”. A gender perspective is also considered by establishing “a mechanism for the effective representation of women in order to incorporate a gender lens in the analyses, conclusions and agreements”.

In brief, through the collective agreement, both parties are represented and influence the decision-making process when technologies are introduced.

Outcomes

The trade union and the employer see the just transition committee as a positive step in their relations, fostering trust and goodwill even though measurable outcomes from the agreement have not yet been established. Furthermore, both parties succeeded in bringing the concept of a just transition to the public agenda by forging alliances outside the company’s perimeter, including with NGOs and parliamentarians on the workers’ side and with other transport companies at the international level on the employers’ side.

3.1.4 Ghana case study: Collective agreement in the agricultural industry

Background

Initiatives under the scope of just transition in Ghana have so far taken place mostly at the enterprise level rather than being driven by national policy. Nevertheless, the Government of Ghana has engaged on several commitments under the scope of the United Nations Framework Convention on Climate Change (UNFCCC). In 2022, the Government launched the National Energy Transition Framework, which sets policy recommendations aiming at contributing to the achievement of the country’s commitments towards decarbonizing the energy sector while ensuring socio-economic growth (Ghana, Government of Ghana 2023).

Key information on industrial relations in Ghana

In 2019, the trade union density rate in Ghana was 16.8 per cent, and in 2020, the collective bargaining coverage rate was 38.4 per cent (ILO, n.d.-a; ILO, n.d.-b). Collective bargaining can take place at the enterprise level as well as at the national level. Ghana is estimated to have a high level of informality.26

Case study

The case study in Ghana focuses upon just transition clauses – including on OSH and environment concerns – in six enterprise-level collective agreements in the agricultural sector, but with a specific focus on an agreement with an employer in the palm oil industry.

The just transition clauses under consideration originally stem from a suggestion by the General-Secretary of General Agricultural Workers Union (GAWU) that just transition concerns could be considered in collective agreements with employers, an idea that was very well received by the palm oil company's management, who recognized need to take action in this regard. The GAWU leadership's commitment to climate action was influenced by the ITUC's international initiatives for global environmental protection. Management's motivation for supporting the just transition clauses was also related to the company’s efforts to obtain Sustainable Palm Oil Certification.

Examples of just transition clauses within the collective agreement

The six enterprise-level collective agreements between the GAWU and its counterpart companies, all of which include a clause addressing just transition, broadly share the same content, but for the purposes of this case study, the agreement with the palm oil company is the one that has been examined in detail.27 The agreement starts with mutual acknowledgement by management and the trade union that “the reality of climate change … is threatening quality of life on the planet”, followed by a joint commitment “to developing a policy on climate change with the active participation of the workers and their organization … to contribute to the process of a just transition”. This commitment is supported by three action points, which are to:

(1) … raise awareness on climate change; (2) develop capacities for reducing the negative impact of climate change on people, the communities and the operations of the company; (3) promote collaboration with GAWU and other stakeholders to promote sustainable production and consumption patterns that contribute to reducing global warming (clause 4).

The palm oil company has developed detailed environmental policies at the workplace level; promoted regular staff training on environmental sustainability principles and on related OSH concerns. In addition, the collective agreement has led to the creation of a sustainability manager role to monitor and ensure the enforcement of the respective clauses.

There were also efforts to build the capacity of both management and workers towards adopting changes to production processes aimed at reducing environmental impacts, including through the replacement of chemical fertilizers by organic varieties, reducing water usage, carrying out wastewater treatment and quality checks, controlling erosion and phasing out agricultural burning. The company has also engaged in information sharing initiatives with neighbouring communities on best environmental practices.

Outcomes

Collective bargaining has contributed to raising awareness about environmental sustainability principles and has promoted concrete actions such as worker education and certification initiatives from the employer side. It also created a platform for a management–trade union partnership and collaborative problem-solving. Furthermore, the environmental concerns reflected in these collective agreements in the agriculture sector represent a positive advancement in terms of more broadly promoting the role of collective bargaining for just transition in Ghana.

However, other key aspects, such as protection against climate-induced job losses and/or income cuts for workers or enhanced sustainability or productivity for the company, have not been addressed so far.

3.1.5 India case study: Collective agreement in the automotive manufacturing sector

Background

India’s economy is highly dependent on carbon-intensive sectors. However, there is increasing national recognition of the need to not only transition away from fossil fuels, but to do so in a socially just way. With this in mind, India’s Long Term Low Emission Development Strategy focuses on workforce reskilling and redeployment (Tandon 2024). And according to India’s reporting to the UNFCCC, the country’s international efforts to combat climate change include the foundation of the International Solar Alliance (ISA) and the Coalition of Disaster Resilient Infrastructure, as well as the rolling out of programmes and policies related to affordable housing, waste management and circular economy, and conservation of water, as well as providing adequate infrastructure (India, MOEFCC 2023).

However, only a few collective agreements in India contain clauses addressing the need for reducing the environmental impacts of a company’s operations. A number of factors may account for the low incidence of collective agreements with just transition clauses. These include (but are not limited to):

the lack of any immediate threat of job losses on account of climate change, industrial decarbonization or environmental degradation;

the lack of awareness among workers about the need for participation in just transition plans; and

the weakening of trade unions due to the increasing employment of workers in a diversity of contractual arrangements.

Key information on industrial relations in India

According to ILO statistics, as of 2017, the trade union density rate in India was around 19.8 per cent (ILO, n.d.-a). It is difficult to gauge the extent of collective bargaining coverage in the country, as no reliable estimates are available. Collective bargaining in India is highly fragmented, partly due to the large number of trade unions and the huge share of workers in the informal economy (Chakraborty et al. 2019).

Case study

This case study discusses a collective agreement28 at the enterprise level that advances just transition. It outlines the benefits of just transition clauses and contains insights with respect to the limitations and challenges faced in the process of incorporating and implementing such clauses. The case focuses on an enterprise agreement in a vehicle manufacturer covering 675 workers across four factories. In 2022, the company trade union and company entered into collective bargaining, which culminated in a collective agreement that was signed on 25 January 2023 and ends on 30 June 2026.

The just transition clause in the collective agreement focuses on workers reducing waste and environmental harm and adhering to the company’s environmental management and OSH plans. The just transition clause was proposed by management, to support its environmental and health and safety accreditation through the International Organization for Standardization (ISO)29, and was strongly supported by the trade union, as it aligned with the trade union’s commitments.

Examples of just transition clauses

The collective agreement regulates working conditions in the company in general and includes one clause on just transition (clause 17), which is entitled “Environment”. Clause 17 reads as follows:

It has been discussed and decided by and between the parties that the workmen will adhere to the company’s environmental and OSHAS policy while working and follow the guidelines, rules and regulations laid under the ISO 14001 and OHSAS 1800130 Management Systems for prevention of wastage of natural resources, disposal of wastage in appropriate bins, optimum utilization of equipment and resources like compressed air, electricity, fuel, hand gloves, lubricants etc. and prevention of spillage of any material, or liquid on shop floor or any other area in the premises.

It is further decided by and between the parties that as an initiative towards preserving the natural resources, the practice of submission/distribution of hard copies of various forms, records, applications, and to Time Office will discontinue. The same will be made available online on ESS or mobile app introduced by the company. All types of applications for loans, advances, certificates etc. to Time Office shall be made through the said system. As usual, hard copies of pay slips, forms, form 16, certificates etc. can either be taken prints from the ESS or can approach Time Office with proper justification.31

Outcomes

The company runs regular training workshops on topics relating to health, safety and the environment for all staff and management. Furthermore, an employee has been designated the “energy captain” to increase worker participation and to support awareness and compliance with the environment clause cited above. Other outcomes include the use of renewable energy resources and eco-friendly gases, rainwater harvesting, and reducing paper and energy consumption.

3.1.6 Republic of Korea case study: Transition to electric vehicles

Background

The emergence of serious discussions on industrial transformation in the Republic of Korea is a relatively recent development, gaining momentum since 2018. As the nation grappled with the effects of COVID-19, the Korean Government began advocating a “Green New Deal”, strengthening the discourse towards an environmentally sustainable society. In the process, a consensus was formed that measures were needed not only for the technical and economic dimensions of industrial transformation, but also the social and normative aspects. Soon, the problem on the table was no longer seen as being the transition itself, but how to achieve a just transition. In the Republic of Korea, “just transition” is understood as a direction or goal of “policy that minimizes the burden and damages shouldered by vulnerable groups in regions or industries that may be directly or indirectly harmed in the process of moving to a carbon-neutral society” (Republic of Korea, Ministry of Environment 2021). Implementation of just transition based on this interpretation is mainly conducted under the leadership of the Government, but is strongly characterized by the Government reluctantly following the discourse of the international community rather than pursuing an active transformation policy.32

Key information on industrial relations in the Republic of Korea

In 2020, trade union density was 12.4 per cent, and in 2019, collective bargaining coverage was 15.6 per cent in the Republic of Korea (ILO, n.d.-a; ILO, n.d.-b). Collective bargaining can take place at the national, sectoral and enterprise levels. Currently, it is primarily undertaken at the enterprise level, despite the fact that the number of industry-level trade unions and supra-company trade unions continues to increase.

Case study

A major motor company was anticipating shifting production to place an increased emphasis on producing electric vehicles, which was going to have major impacts on the company’s workers. Industrial relations at the company have a dual structure. There is bargaining at the workplace level, where automobiles are produced, as well as enterprise-level bargaining, during which companies and trade unions engage in collective bargaining. In workplace-level negotiations, matters such as production speed and personnel allocation are determined, and consultations take place between business unit representatives and trade union shop stewards. At the enterprise-level, formal labour and management representatives are central to negotiations, resulting in legally binding collective agreements. While enterprise-level bargaining holds a formal role in the company’s industrial relations, workplace-level bargaining also plays a significant role.

As electric vehicles were being introduced at a fast pace, labour and management at the motor company began negotiations at both levels. Negotiations commenced at the workshop level, where automobiles are manufactured. In labour–management negotiations, key issues revolved around changes in work methods due to the introduction of electric vehicles, the workforce required and volume distribution. For instance, the building of electric vehicles results in more modular manufacturing requiring less labour and different skills. These issues were crucial, as they were all linked to employment matters, and consequently trade unions viewed the introduction of electric cars as a substantial challenge, which prompted them to enter into negotiations with the aim of securing workers’ employment in the face of the expected changes.

The negotiations resulted in just transition agreements being signed in 2020 and 2021. The latter of these two collective agreements, referred to as the “Future Agreement”, is practically binding on the parties to the collective agreement. However, although this agreement contains provisions to respond to the climate crisis by encouraging the development and production of eco-friendly cars, its main focus is on resolving trade union members’ employment-related concerns that could arise in the transition to future cars, such as employment guarantees and the provision of job-transition training.

The motor company has about 50,000 trade union members who are covered by the Future Agreement. The agreement establishes a joint management, trade union and expert member advisory committee to make recommendations on how to best transition to the electrification of cars. While negotiations at each plant were not always seamless, most of them were ultimately resolved without the significant employment adjustments initially feared.

It is also worth noting that around the same time, a related agreement was being forged at the sector level in the Republic of Korea’s metal industry, which is intimately tied to the automobile production industry. The metal industry covers around 2.2 million workers and employees, and in 2021, an “Industrial Transformation Agreement” was signed between the metal industry’s national-level partners. In this agreement, employers and their organizations and workers’ organizations in the metal sector acknowledged the importance of the climate crisis for the metal industry. In essence, the industry transformation agreement established the principle that as the industry is transformed by digitalization, automation, electrification and the climate crises, social partners at the enterprise and national level will establish a collaborative arrangement to implement actions focused on maintain job quality, security and training in the industry. However, the limitation of the national agreement was that the consensus achieved largely remained symbolic instead of leading to substantive just transition measures. But looking beyond the specific provisions of the agreement, it is important to note that this sector-level arrangement still provided an overarching environment for engaging in collective bargaining on just transition, ultimately supporting the enterprise-level Future Agreement negotiated at the motor company.

Examples of just transition clauses within the collective agreement

Part of the Future Agreement is a social declaration that was signed in 2020. The social declaration encompasses the following six components:

Ensuring the future competitiveness of domestic plants and job security for existing employees.

Establishing a Task Force Team (TFT) to respond to changes in the future automobile industry, such as expanding of electric vehicles.

Implementing a job conversion programme to prepare for forthcoming industry transformations.

Collaboration between labour and management with customers and citizens.

Providing mutually beneficial support to parts suppliers to overcome challenges in the automobile industry.

Achieving customer satisfaction through quality improvements.

A crucial point of the Future Agreement is that both labour and management have set the transition to future vehicles and job stability as significant objectives. One of the mechanisms for effectively implementing this agreement is the creation of the “Future Change Response TFT”. Comprising six members from both labour and management, the TFT, along with an advisory committee mainly consisting of automotive industry experts, continues to operate. While the TFT does not possess decision-making authority, it serves as a platform for interpreting the transition to electric vehicles within the framework of a just transition by examining and discussing various electric vehicle-related trends.

Outcomes

The Future Agreement signed by the motor company is considerably more detailed and binding compared to the metal industry’s Industrial Transformation Agreement. Furthermore, through the activities conducted by the TFT under the Future Agreement, the company’s labour and management came to recognize the automobile industry's role in carbon reduction. However, the agreement has limitations in that there was insufficient discussion between labour and management regarding climate crisis responses and there were no concrete measures in place in this regard, which means that the agreement’s active response to the climate crisis is relatively weak. Even so, through its focus on employment stability, the Future Agreement partially reflects the principles of a just transition by addressing the adverse effects of industrial transformation on workers' employment.

3.2 Key focus areas of collective bargaining and just transition in the six case studies

3.2.1 Predominant level of bargaining and coverage

Three out of the six case studies cover agreements that were reached at the enterprise level. However, evidence from Germany, the Republic of Korea and the United Kingdom highlights that enterprise bargaining around just transition is often supported by national and/or industry-level dialogue that buttresses the creation of a framework of principles, these are then adapted at the enterprise level as required.

3.2.2 Awareness among social partners on just transition clauses

The case studies highlight awareness and information about just transition clauses, although it is usually too early to assess their impact. The UK study shows that a comprehensive trade union education and training programme – in this case, training green representatives – was driving engagement and participation around just transition action in the workplaces. In Ghana, the GAWU approach to just transition had been informed by the actions of the International Trade Union Confederation (ITUC), and this had led to the ongoing adoption of model just transition clauses in several GAWU agreements. The German case study underscores the important role an employers’ association can play in bringing employers to the bargaining table around just transition. Finally, the role of other international frameworks, such as certification or accreditation, helping to drive the development of just transition clauses were outlined in the India and Ghana case studies.

3.2.3 Key topics on just transition in collective agreements

There are four common themes within the just transition clauses of the six studies: (i) workers’ representation; (ii) planning; (iii) education; and (iv) environmental management. While these are each discussed individually below, in practice they are frequently interconnected.

Representation of workers

Representation of workers in decisions on just transition was the most common theme across the case studies. There are strong co-determination rights, as set out in the Germany case, where collective bargaining involved management and trade unions developing detailed binding plans around how the transition from lignite would be co-managed. The outcome provided workers with several rights and protections, such as no forced redundancies and the joint approval of job transfers. In the United Kingdom, representation of workers was improved through the formal training of green representatives (such as OHS training) and by providing these green representatives with participation in workplace committees. In the Indian case, management aimed to establish dialogue by creating worker representatives called ”energy captains”.

The cases in Ghana, the Republic of Korea and Chile, improved dialogue at the workplace and representation of workers involved setting up committees or frameworks for social dialogue and consultation around the transition process. In the Chilean case, an employer–trade union bipartite committee was created, while joint trade union collaboration to strengthen trade union participation and engagement was also important. In Ghana, the focus was on extending existing OSH joint meetings to include climate action. In the Republic of Korea, a national tripartite dialogue was created, as well as tripartite industry-level dialogue, and at the enterprise level a joint management, trade union and expert advisory committee was created to make recommendations on how to best deal with the electrification of the auto sector. Thus, while improving representation of workers was a central feature in all cases, this was achieved in different forms and at varying levels.

Planning

Transition often requires workforce changes, thus topics of redundancy, job security and/or transition to retirement were features of collective bargaining. Interconnected to workforce change is the need for changes in production processes and skills. For example, as can be seen from the Republic of Korea case study, electric vehicles require less labour in production and require different skills than producing conventional vehicles, thus the parties are seeking to develop new job opportunities and to reskill existing workers. Considering these workforce and organizational changes, planning also links back to social dialogue, for example, the motor company Future Agreement between the parties’ states: “The Union and the company shall establish and operate from the first half of 2022 a body to jointly draw up and implement specific industrial transformation plans, and detailed plans will be decided for each business site.”

The central focus of collective bargaining in the German case study centres on a smooth shutdown of lignite production with clear binding plans focused on redundancy, job security, transition to retirement, transition to equivalent work with equivalent conditions and maintaining skills and training all being central features of collective bargaining between the social partners. Critically, this planning and the financial commitments linked to it were significantly supported by the German Government.

In the Chilean case, where the rail network has been expanded and automated, the bipartite committee is central to dialogue around planning this network transformation. Similarly, in the United Kingdom case, the focus on green representatives and associated committees is centred on developing plans to green workplaces by undertaking environmental audits or by developing green-focused workplace changes such as introducing new technologies or changing work behaviours.

Environmental education

Several of the cases had a strong focus on environmental awareness-raising. For example, the Indian and Ghanian cases both outline education and training programmes for workers around issues of environmental harm, reducing waste and changing work practices to improve workplace environmental sustainability. In the Ghanian case, environmental education and awareness-raising extended beyond the workplace to engagement with the local communities around issues such as “zero-burning”. Moreover, trade unions in both the Indian and Ghanian cases recognized the need for the trade unions involved to raise awareness of environmental issues and just transition among their members.

A strong focus on trade union training is also well reflected in the green representatives and green education actions in the United Kingdom case. Green education was often linked to the practices or actions of workplace committees and rights. For example, environmental committees and trade union-trained green representatives were involved in leading efforts to improve worker and management awareness around environmental issues at the workplace level. This was achieved by holding workplace environmental days or environmental training programmes. In the United Kingdom, there is a national level trade union plan to develop a network of environmental representatives to drive climate change actions at the workplace level.

Environmental management

Some clauses related to developing or adhering to environmental management practices in the workplace. These could be linked to environmental committees, green representatives (UK case) or energy captains (Indian case). In some instances, including Ghana and India, these were also connected to external accreditation or certification practices, whereby worker skills, practices or workplace technologies needed to be altered to meet new environmental management requirements. Thus, there was often a strong interconnection between environmental management, education and training.

3.2.4 Principal bargaining motivations of workers’ and employers’ organizations when negotiating clauses for just transition

The cases reveal varying drives for both workers’ and employers’ organizations engaging in negotiating just transition clauses. For workers’ organizations, emerging changes at the workplace level, such as automation (Chile), or changes at the industry level, such as the electrification of vehicles (Republic of Korea), are impacting employment (skills, job security), and therefore trade unions are seeking to manage these impacts through negotiating just transition clauses. Some motivation was also driven by trade union members’ and/or trade union leaders’ more general concern about the climate crisis (United Kingdom and Ghana). In the case of Germany, state regulation to phase out lignite resulted in the social partners negotiating just transition plans. Beyond changes in state regulation, employers’ organizations were motivated by market incentives, such as external certification or accreditation, as well as by sustainability of production processes, competitive advantage and increasing engagement of workers (Ghana and India).

3.2.5 The strengths and weakness of current just transition approaches

An assessment of what has worked is premature. Nevertheless, the evidence suggests a few aspects that could be important to developing just transition clauses in collective bargaining settings:

Social dialogue and collective bargaining can play an important role for just transition efforts. However, there is no one-size fits all approach and the content, level and whether collective agreements are actually signed always remains a decision of the social partners.

Clauses on just transition in collective agreements may typically be of a declarative nature, but there remains the possibility that they will transform into more transformative approaches later on, as has been observed in other policy contexts (Edelman 1985).

The strong accountability framework seen in the collective agreement in Germany demonstrates how just transition can be effectively supported by collective agreements.

A policy framework set by government – but that fully respects the autonomy of the social partners – can create important incentives or act as a catalyst for developing just transition clauses.

Workers – together with employers – are vital in following up on implementing just transition guidelines into practice.

Education of both social partners is essential to bring an understanding of the role collective bargaining can play in the transition to a low-carbon economy. This is best exemplified by the United Kingdom case.

While agreements of a declarative nature can be a useful first step to establishing just transition principles and actions, the case studies underscore that agreements that drive sustained action have binding accountability mechanism as part of the agreement. Thus, while the case studies reveal promising actions, these actions need to be significantly expanded and accelerated to meet the requirement of global emission reduction targets that are socially equitable.

3.2.6 Potential contribution of green bargaining on mitigation and adaptation to climate change

The cases provide some evidence that collective bargaining has offered a platform to social partners to discuss how reduction of carbon emissions and/or adapting to climate change measures can materialize. The UK example highlights how a joint agreement between management, trade unions and environmental representatives can encourage social partners to mitigate carbon emissions with a focus on energy and water saving measures. The Indian and Ghanian cases also highlight improvements in waste and resources usage at the workplace level. The Republic of Korea case points to the importance of collective bargaining when considering adaptation. Specifically, the electrification of the Korean automotive industry is resulting in significant changes for auto workers, and collective bargaining has been central to managing the impacts on auto workers covered by the agreement. The strength of current approaches to just transition found in the case studies is the emphasis on establishing social dialogue frameworks or processes. Previous research has suggested that organizations with greater worker participation have improved reductions in business-related emissions (Markey et al. 2019). While the case studies suggest a link between business mitigation and collective bargaining, this is not established robustly, and further research is required.

Potential contribution of green bargaining to a gradual and smooth transition to a low-carbon economy

The central objective of just transition clauses in the case studies is focused on mitigating the negative effects of the transition to a low-carbon economy. For example, in the German case, the provision of financial assistance packages to workers; the continuation of apprenticeship programmes, skills and training packages; and the provision of financial assistance to impacted companies were all predicated on smoothing the phase-out of coal-fired energy generation and mining. Similarly, the Republic of Korea case, while still in development, is centred on smoothing the transformation of the automotive industry.

The evidence collected from the cases does not provide a clear understanding of the degree to which just transition clauses have been implemented. The establishment of committees and “green representative” roles is the most common mechanism to track implementation. However, several of the agreements in the case studies are of a declarative nature, and therefore there are few mechanisms to track implementation. This is a clear limitation of current approaches, and further research is required.

The case studies underscore that collective bargaining can provide for orderly and equitable management of the social and environmental transformations that the shift to a low-carbon economy requires. Moreover, collective bargaining is a critical tool for establishing environmental and social actions that are legally binding on the parties.

Connection between green bargaining and an enabling business environment and sustainable enterprise development

Many of the enterprise-level clauses focused on energy and waste reduction and strengthening existing OSH and environmental practices, and thus, cost reduction and organizational performance were emphasized elements in the agreements. Equally, there was also some attention paid to industry transformation to ensure the sustained development of organizations (Republic of Korea and Chile). Finally, as noted, some transition clauses supported certification/accreditation, which was primarily aimed at improving business performance (India and Ghana).

Conclusion

A review of the just transition and collective bargaining literature shows that there is a rapid and growing engagement with the concept and principles of just transition – particularly since the embrace of the term within the ILO Guidelines for a Just Transition towards Environmentally Sustainable Economies and Societies for All (ILO 2015) and the UNFCCC process (UNFCCC 2015). There is a large volume of literature outlining the principals of just transition and examining one-off just transition case studies, particularly from fossil fuel-embedded industries in industrialized economies in the global North. But the literature on the role of just transition clauses in collective bargaining agreements is limited. However, within the literature examined, there were key themes that appear to be commonly included in just transition clauses within collective agreements:

the setting-up of social dialogue mechanisms between social partners;

support for workers to upskill or retrain;

support for social protection and consultation processes on topics such as redundancy and retirement programmes; and

initiatives to transition impacted workers to new job opportunities often linked to greener and more sustainable industries.

The analysis of the available literature showcased some challenges and opportunities in terms of including just transition clauses in collective agreements. One of the major challenges is that coordination and collective bargaining in general have become more difficult due to the fragmentation of labour markets due to digitalization and outsourcing (Weil 2014). In some countries, there has been a decline in trade union density and collective bargaining coverage (ILO 2022c).

Awareness among industrial relations actors of just transition principles and the important role that collective bargaining can play in responding to climate change is currently limited and should be enhanced. While the urgency of climate action is partly recognized in the world of work, the concept of just transition – including its principles, its implementation and the role of social partners, especially within collective bargaining – remains poorly established.

The review of the literature also underscored its limitations and the need for further research. Key gaps in the literature include:

how social partners have negotiated the inclusion of just transition clauses in collective agreements;

the promotion of just transition in collective agreements in weak industrial relations contexts;

how just transition programmes embedded in collective agreements have been implemented over time; and

the impact of such programmes where they exist.

Moreover, “technology-switching” transitions, which emphasize skills development, worker retention and apprenticeship programmes, remain understudied despite likely driving most just transitions globally.

The analysis of a sample of collective agreements showed that, currently, most of the collective agreements that contain clauses on just transition were of a declarative nature – that is, broadly supportive of just transition principles, but without objective or measurable goals – while only a small portion showcased clauses of a more transformative nature that might offer the chance for meaningful change. However, these declarative clauses can still represent an important first step in raising awareness on just transition and could eventually be renegotiated into more transformative clauses in the future that offer concrete goals for furthering just transition at the national, sector and enterprise levels.

The case studies have shown that education around the need to move climate change/action into the collective bargaining space appears to be crucial. The educational role that global trade unions (“Global Unions”) and the International Organisation of Employers can play in building such awareness was apparent in several case studies. In some instances, external reporting requirements (accreditation/certification) motivated social partners to establish just transition principles in collective agreements.

Social dialogue around climate action creates opportunities for collective bargaining beyond working conditions and terms of employment. Collective agreements can contribute to fostering inclusive and efficient governance of work, especially during technological and environmental transitions. Collective bargaining encourages social partners to discuss issues of joint concern and benefit, and thus, just transition may itself be a mechanism to foster improved social dialogue. In industrialized countries with mature industrial relations, collective agreements have long been a powerful tool for finding a balance between interests of workers and employers, and they now offer a potentially impactful means of regulating and ensuring just transition within enterprises and more broadly across economic sectors (as seen in the Germany case study above).

In conclusion, just transition clauses in collective agreement can help facilitate workforce reskilling and adaptation, potentially ensuring the smooth integration of new technologies and environmentally sustainable practices. By doing so, these agreements support the shift towards greener production methods. Moreover, collective agreements allow workers and employers and their organizations to maintain economic stability and industrial pace in times of change, while paving the way for innovative regulatory frameworks that address the evolving landscape of work.

#### Climate change causes extinction through cascading, complex system failure. Food and resource shortages restrict access to basic human needs, prompting mass sociopolitical instability.

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1. Introduction

Despite recent social protests and climate emergency declarations, efforts to mitigate climate change to date are insufficient.1 Greenhouse gas (GHG) emissions continue to rise and global warming above 3 °C is increasingly likely this century.2 There is emerging evidence of amplifying feedbacks accelerating3 and dampening feedbacks decelerating.4 These feedbacks exacerbate the possibility of runaway global warming,5 estimated at 8 °C or greater by 2100.6 Such temperature increases translate to a range of real dangers,7 shifting the narrow climate niche within which humans have resided for millennia.8

Looking beyond the framing of “global warming”, there is concern that the effects of ﻿ climate change may pose an ﻿ existential risk to humanity, one that threatens “societal collapse” or even extinction.9 Understanding these worst-case scenarios is essential for good risk management.10 Improving awareness of potential pathways through which ﻿ climate change poses such a risk can help inform decision- making about interventions.11 Considering societal impacts that are more tangible for individuals, businesses and governments,12 and better ﻿ aligned with conventional risk priorities,13 may facilitate more effective action to mitigate ﻿ climate change.14

A number of pathways through which ﻿ climate change could cause societal collapse have been identified, one being via food insecurity.15 Climate change is predicted to undermine agricultural systems and disrupt food supply,16 which may lead to economic shocks, socio- political instability as well as starvation, migration and conflict at local through to global scale.17 While the climate science underpinning global warming estimates is well established,18 albeit subject to sensitivities, the uncertainties increase significantly when we start to consider these tangible societal impacts given the complex relationships involved.19 Our understanding of worst-case scenarios, and particularly of empirical evidence addressing the causal pathways through which ﻿ climate change may cause societal collapse, is underdeveloped.20

In this chapter we aim to identify and structure an empirical evidence base of the relationships between ﻿ climate change, food insecurity and societal collapse. We do this using Causal Loop Diagrams (CLD), a system dynamics approach that is useful for visualising the relationships between variables in a complex system.21 This chapter is organised as follows. In Section 2, we review the societal collapse and ﻿ existential risk literature to refine the aim introduced above. In Section 3, we develop an original methodology to establish a new empirical evidence base and create a novel-format CLD of causal pathways between ﻿ climate change and societal collapse. In Section 4, we present and discuss the results from the application of this methodology to the ﻿ climate change, food insecurity and societal collapse causal pathway of interest. We conclude, in Section 5, by identifying avenues of future work that may build upon this chapter.

2. Literature Review

To refine the aim of this chapter, introduced in Section 1, our review examines whether there is historical evidence of ﻿ climate change as a mechanism of societal collapse and to what extent have causal pathways been documented to inform our understanding of ﻿ climate change as an existential threat to contemporary society.

We first define the terms “﻿ existential risk” and “societal collapse” as used in this chapter. Adopting ﻿ Ord’s definition, “an ﻿ existential risk is a risk that threatens the destruction of humanity’s long-term potential” be it incomplete destruction, such as societal collapse, or complete destruction, such as extinction.22 Adopting Kemp’s definition, societal collapse is an “enduring loss of ﻿ population, identity [and/or institutional] complexity”;23 it may be abrupt or gradual, but is typically rapid because it is notably transformative, and may be experienced by a local, national or the global community of people. Fig. 1 presents a conceptual model of societal collapse, synthesised from the broader literature, to provide further contextual definition.

[FIGURE 1 OMITTED]

The rise and fall of civilisations has been documented since the earliest recordings of history and is increasingly studied to inform our understanding of societal collapse.24 We consider two types of historical studies that provide insight into ﻿ climate change as a mechanism of societal collapse in the past. We note that other mechanisms are also discussed in the literature, and there is debate about the role of different mechanisms in particular societal collapse events.

The first type of historical study empirically investigates an individual societal collapse event using primary sources, including anthropological, archaeological and paleontological data. Based on such data analysis, natural ﻿ climate change has been asserted as a mechanism of societal collapse in many of these case studies, as established by de Menocal25 and Weiss and Bradley.26 For example, Hodell et al.,27 Haug et al.,28 and Medina-Elizalde and Rohling29 analyse paleoclimate data alongside the archaeological record to show that drought conditions, driven by ﻿ climate change likely due to solar forcing, contributed to the collapse of the Classic Maya civilisation of Mesoamerica in ~8–10th century CE. Weiss et al.,30 Cullen et al.,31 and Cookson et al.32 show that regional aridity, driven by ﻿ climate change likely due to ﻿ volcanic forcing, contributed to the collapse of multiple societies across Mesopotamia, including the Akkadian Empire in ~22nd century BCE. Similarly, natural ﻿ climate change has been implicated in the collapse of multiple Late Bronze Age societies around the Mediterranean,33 including Mycenaean Kingdoms in ~12th century BCE,34 the Harappan Civilization of South Asia in ~19th century BCE,35 the Angkor Empire of Southeast Asia in ~15th century CE,36 multiple Chinese Dynasties37 and civilisations along the Silk Road38 during the previous millennium, the Norse Vikings of Greenland in ~16th century AD,39 and the Tiwanaku Empire of Pre- Columbian South America in ~10th century CE40 amongst others.

This first type of studies establishes precedence of natural ﻿ climate change as a mechanism of societal collapse throughout history, demonstrating the risk that anthropogenic ﻿ climate change similarly poses to contemporary society. However, the events examined occurred more than 100 years ago, with most dating back to ancient history, when societies were relatively isolated. Because these case studies pre- date contemporary society, they do not provide empirical evidence of anthropogenic ﻿ climate change in context of today’s highly interconnected society.41

Statistical evaluation of the frequency and significance of natural ﻿ climate change relative to other mechanisms of societal collapse identified across these case studies has not yet been established within the literature. However, the second type of historical study does qualitatively examine collections of these case studies to develop theories of predominant modes of societal collapse. Three major modes are observed, as follows.

Fagan42 and McMichael43 focus on natural impact on the human system across multiple civilisations, concluding that natural ﻿ climate change is predominant having significantly influenced human existence throughout history. Over the past 12,000 years, the natural and human systems developed within the stable climate niche of the Holocene Epoch.44 The associated geographic endowments governed human transition from band societies based on foraging to complex societies based on agriculture. Unfavourable subtle (e.g. weather variations) and drastic (e.g. natural disasters) shifts in climate influenced the collapse of complex societies either by direct loss of life or indirectly via resource insecurity. In particular, in this mode, typically, the loss of agriculture led to de-﻿ population via famine, migration or conflict due to food insecurity.

Ponting,45 Wright,46 and Diamond47 focus on human impact on the natural system across multiple civilisations, concluding that human overpopulation and overexploitation relative to the carrying capacity of the environment is predominant. Societal collapse via environmental degradation often involved unsustainable agriculture, exacerbated by natural ﻿ climate change, leading to de-﻿ population as well as institutional breakdown via loss of economic stability and socio-political dysfunction due to magnified inequality. This mode aligns with early “Malthusian ﻿ catastrophe”,48 ”tragedy of the commons”,49 and “overshoot-and- collapse”50 theories.

In their 12-volume magnum opus exploring the rise and fall of 28 civilizations, Toynbee concludes that “great civilizations are not murdered [but rather] they take their own lives.”51 Building on this, Tainter,52 Acemoglu and Robinson,53 and Johnson54 focus on human impact on the human system across multiple civilisations, concluding that societal complexity in relation to problem-solving inability (e.g. environmental degradation) and institutional dysfunction (e.g. inequality and oligarchy internally, trade ally and hostile neighbour relations externally) is predominant. As a society becomes more complex, it reaches a point beyond which “continued investment in complexity as a problem-solving strategy yields a declining marginal return” and it will be at risk of collapsing under its own weight via institutional breakdown and de-﻿ population.55 This mode aligns with ”energy returned on energy invested” theory,56 applied to explore societal collapse by Homer-Dixon.57

Diamond,58 Turchin,59 and Schwartz and Nichols60 examine why some civilisations have been able to thrive or recover, rather than collapse. They similarly conclude that societies have flourished due to combinations of favourable geographic endowment, managing their existence within the carrying capacity of the natural system, and co-operative action in problem-solving.

This second type of studies highlights that societal collapse involves a complex nexus of factors and dynamically interlinked events. For instance, Gibbon details how all three of the modes, described in the preceding five paragraphs, contributed to the collapse of the ﻿ Roman Empire.61 These modes of societal collapse, although based on empirical evidence pre-dating contemporary society, describe key aspects of the anthropogenic ﻿ climate change problem faced today. While these studies describe causal pathways of relevance, to the best of our knowledge, no study has used CLDs to untangle the complexity and give structure to the dense information in this evidence base.

Across these historical studies, we observe no apparent temporal or spatial influence on the occurrence of societal collapse. Rather, societal collapse has been described as occurring in various forms, whether it be by known “white-swan” or surprise “black swan” events,62 in different geographic locations and times throughout history. Additionally, a quantitative statistical analysis by Arbesman shows that societal collapse has occurred randomly and independent of civilisation life- spans.63 These qualitative and quantitative observations highlight that any society may be susceptible to collapse, much in-line with the Red Queen Hypothesis of the Law of Extinction.

From these historical studies, we observe sets of secondary determinants for each of the primary determinants introduced in Fig. 1, which are defined in Fig. 2. Considering a geographically bounded society, emigration refers to any permanent departure of ﻿ population including both voluntary or forced migration, conflict mortality accounts for deaths directly arising from any form of domestic or international conflict (e.g. due to ﻿ war), and natural mortality accounts for deaths related to domestic environmental conditions (e.g. due to famine). The loss of socio-cultural norms, political structures or economic value accounts for that which notably transforms the identity and institutions of the society.

[FIGURE 2 OMITTED]

In addition to these historical studies, we consider the relatively nascent studies of existential risks (X-risks) that provide insight into how ﻿ climate change may trigger societal collapse in the future.

Comprehensive surveys of X-risks reveal mechanisms that could cause the collapse of contemporary society. Bostrom and Ćirković,65 ﻿ Rees,66 and Ord67 provide eminent scholarly treatment of the field, drawing from the academic literature. The World Economic Forum68 and Global Challenges Foundation69 produce global risk reports drawing from decision-makers and experts across intergovernmental and non-governmental organisations. These surveys establish that many historically observed mechanisms of societal collapse, including natural ﻿ climate change, remain applicable as X-risks today. However, the ﻿ state of existence of contemporary society has led to a different landscape in which these mechanisms apply, and to a number of unprecedented mechanisms, including anthropogenic ﻿ climate change. ﻿ Ehrlich and ﻿ Ehrlich70 and Häggström71 note that although increased complexity, such as globalisation and ﻿ technological advancement, can increase a society’s resilience and adaptability, it can also increase ﻿ vulnerability. For example, globalisation increases resilience to local agricultural production shocks through access to global markets; however, it also increases ﻿ vulnerability through ﻿ exposure to sudden reversal in connectivity, such as trade restrictions.72 Some geoengineering technologies, for example, may enable society to mitigate and adapt to ﻿ climate change; however, they may also increase ﻿ vulnerability to ﻿ termination shocks, where failure of the technology exposes society to sudden temperature increases.73 In this highly interconnected landscape, “synchronous”74 and ”cascading”75 failures create the potential for mechanisms and outcomes of societal collapse, once contained to a single localised civilisation, to rapidly spread across multiple nations and impact humanity on a global scale.

Works by Lynas,76 Wallace-Wells77 and Gowdy78 draw on the scientific ﻿ climate change literature to explore hypothetical futures under best- to worst-case scenarios. The scenarios consider the feedbacks within the natural system that could worsen, as well as the potential for humans to mitigate, anthropogenic ﻿ climate change. Shifts in average weather (e.g. temperature) and natural disasters (e.g. floods) affected by ﻿ climate change could impact human mortality directly. These two effects, coupled with sea level rise due to melting of ice caps, could indirectly impact human mortality via degradation of the natural world system (e.g. land quality) and the human world system (e.g. ﻿ infrastructure failures) resulting in resource and service insecurity. This insecurity could impact institutional stability, resulting in economic loss, political dysfunction and social unrest, as well as migration and conflict. The hypothetical outcomes for contemporary society against the threat of anthropogenic ﻿ climate change range from dystopian (collapse) to utopian (recovery).

These futures studies identify endpoints of different causal pathways between anthropogenic ﻿ climate change effects and potential impacts on the human world system, with the latter reflecting key determinants of societal collapse observed in the historical studies. Scholars have made limited in-roads to empirically investigating the top-level relationships between some of these endpoints using recent datasets. The direct links between ﻿ climate change and the endpoint impacts of mortality, conflict and migration are, respectively, examined by Mora et al.,79 Hsiang et al.80 and Hauer et al.81 The feedback between migration and conflict driven by climate change is examined by Abel et al.82 The direct links between ﻿ climate change and the endpoint impacts of economic loss, political instability and shifts in cultural norms are examined by Burke et al.,83 Sofuoğlu and Ay,84 and Adger et al.85 respectively. However, the complex bottom-level links between and surrounding these endpoints are generally ill understood,86 and the strength of empirical evidence is poorly documented from a systems science perspective.87 To the best of our knowledge, no study has empirically examined how the impacts of ﻿ climate change could explicitly translate into societal collapse for contemporary society. We do not have a clear picture of ﻿ climate change as a ﻿ systemic risk to our globalised society, particularly at spatial scales accounting for the heterogeneity of individual identity, business governance and policymaking across nations, and international exchanges. This limits our ability to understand feedbacks, identify intervention points, develop quantitative models and inform strategies to minimise the risk of societal collapse occurring in the future.88

Given the insights from this review, we refine the aim of this chapter as follows. Firstly, the empirical evidence base should specifically address contemporary society. Secondly, the CLD should be constructed at a scale and granularity that addresses the heterogenous characteristics of nations and international interactions. The refined aim of this chapter is thus to identify an empirical evidence base of ﻿ climate change, food insecurity and societal collapse in contemporary society and structure the evidence base with a CLD defined at global scale and national granularity.

3. Methodology

A two-stage framework, consisting of five steps, was developed to achieve the aim of this chapter. For each step, below, we first introduce it generically and then describe its application to our specific analysis of the ﻿ climate change, food insecurity and societal collapse causal pathway.

3.1. Stage 1: Establishing an empirical evidence base of societal collapse in contemporary society

Step I deploys societal collapse proxies via a key word search to identify “evidence points”, which in this instance may be considered data points, in the form of publications that empirically examine the causal pathway of interest in contemporary society.

The determinants defined in Fig. 2 provide these societal collapse proxies to establish the new empirical evidence base in lieu of historical societal collapse events pre-dating contemporary society. The ﻿ population loss set are straightforward to isolate, consistent to measure across nations and describe tangible consequences. The institutional breakdown set are relatively less so. Thus, the societal collapse proxies adopted in this study were natural mortality (i.e. starvation, with respect to food insecurity), conflict mortality and emigration; subsequent studies could use the institutional breakdown set. Key words were selected based on terminology of ﻿ climate change, food insecurity and the societal collapse proxies. Peer-reviewed journal articles were chosen as the form of evidence point in this study; subsequent studies could use other publications, such as books and reports.

The keyword search was performed in Scopus. A record of the search is contained in the Supplementary Information (A.). Approximately 3,000 publications were reviewed by reading the title, abstract and main body as needed. Evidence points were selected based on satisfaction of the following criteria: the publication (a) is a peer-reviewed, English- language, journal article; (b) uses empirical, data driven methods; (c) examines the period from 1990 to present (2019), representative of contemporary society; and (d) primarily examines the causal pathway of interest. We made an exception to (a) to include the most recent Limits to Growth book,89 which was not itself a search result but documents the World3 model that was identified in the search results. We note that (b) precluded selection of review or essay-style publications; however, we found that these were often discussed in the literature review of selected evidence points, so were, nonetheless, accounted for indirectly.

This step resulted in a new empirical evidence base consisting of 41 evidence points, which are summarised in Fig. 4.

Step II defines a custom colour-coded typology for the new empirical evidence base. This typology is used in Stage 2, to construct a final CLD (f-CLD) in a novel format showing the spread of the evidence base across the system.

In this study, we were interested in the methodological spread as this provides information on data that may be useful for future studies. Four methodological categories were identified in the new empirical evidence base. Each evidence point was classified into one of these categories and assigned a colour coding, namely: quantitative ﻿ complex systems model — red; statistical analysis of quantitative dataset — blue; collection / analysis of qualitative interview / survey data — green; quantitative data-led case study / scenario — yellow.

The resulting typology of the new empirical evidence base is shown in Fig. 4.

3.2. Stage 2: Constructing a novel-format causal loop diagram from the empirical evidence base

Step III involves creating an individual CLD (i-CLD) for each evidence point to clearly structure the complex causal relationships examined. These i-CLDs provide the building blocks from which to construct the f-CLD in Step IV.

[FIGURE 3 REMOVED]

The process to create an i-CLD is as follows. The corresponding evidence point was examined in its entirety to identify and record key information in the form of variables (nodes), links (arrowed lines) and relationship notation (positive or negative). Key information derived from the original data-driven content, i.e. the main analysis, of the evidence point was colour coded in the i-CLD according to the typology classification established in Step II. Any relationships hypothesised but not supported by the main analysis were coloured grey. Key information derived from other content, i.e. the literature review, of the evidence point was coloured black. The scale and granularity of the i-CLD was recorded as detailed in the evidence point. This process was repeated for each evidence point in isolation until a complete set of i-CLDs was produced for the new empirical evidence base.

All 41 i-CLDs created in this study are contained in the Supplementary Information (B.). One of the i-CLDs is shown in Fig. 3 as an example. Step IV reconciles the set of i-CLDs into a standardised format in order to construct the f-CLD of the system of interest at the desired scale and granularity.

The standardisation process has two aspects. One aspect is related to component (variables and links) definition, necessary to maximise clarity of the f-CLD while covering all information contained in the evidence base. This addresses the typical challenge of CLDs becoming dense and overcomplicated, which decreases their ﻿ utility. The other aspect is related to level of aggregation, necessary to ensure the f-CLD conveys information at the intended scale and granularity. The standardisation is an iterative process, as follows.

The ~950 variables from the set of 41 i-CLDs were recorded on a blank worksheet for the f-CLD, without links between them. A clustering approach was used to reconcile these variables into like groups. For each group, an overarching major node was isolated and the i-CLD variables in the group were virtually deposited into a matrix for that major node. For example, drought, sea level rise and crop disease were some of the i-CLD variables clustered into an environmental risk factors f-CLD major node matrix. The f-CLD major nodes were defined at a level of aggregation representative of a nation. Doing so effectively scaled down any global or regional aggregation, and scaled up any sub-national or local aggregation, in the i-CLD variables. For example, household food imports was an i-CLD variable of local aggregation that was scaled up to national food imports (trade) in the f-CLD.

The ~1150 links from the set of 41 i-CLDs were reconciled into arrowed lines between the major nodes in the f-CLD. This sometimes- required interpretation of implied causality in the i-CLD relationships in order to route them across the major nodes in the f-CLD. For example, where an i-CLD showed a direct link from international food price to conflict variables, this was routed using arrowed lines from international food price to national food price to food ﻿ accessibility to food insecurity and finally to conflict major nodes defined in the f-CLD. Where there was a discrepancy between relationship descriptions, the relationship with the most supporting i-CLDs was adopted.

The interim f-CLD produced at the end of each standardisation iteration was examined to determine whether the major node definition could be refined to maximise clarity. For example, in one iteration water and land were defined as separate major nodes, but examination determined that each had the same arrowed lines to other major nodes; therefore, another iteration was undertaken with water and land now clustered under a single natural resources major node in order to minimise redundant arrowed lines. This process was iterated several times until an f-CLD had been constructed at an appropriate level of detail for this study. Additionally, relevant literature reviewed in Section 290 was cross- referenced, but not included as evidence points, to ensure comprehensive coverage of key relationships in the f-CLD.

The standard-format f-CLD, consisting of uncoloured and unweighted components, resulting at the end of this step is contained in the Supplementary Information (C.).

Step V maps each i-CLD to the f-CLD using a weighted (line thickness) typology (colour-coded) approach. This visually documents the spread of the evidence base across the system described by the f-CLD.

The process to map an i-CLD to the f-CLD is as follows. Each variable (node) of the i-CLD was assigned to its corresponding major node(s) in the f-CLD. Each link (arrowed line) of the i-CLD was assigned to a corresponding route along the arrowed lines in the f-CLD. Each time an arrowed line in the f-CLD had an i-CLD link assigned to it, an incremental weighting of one-unit line thickness in the corresponding typology colour-coding of the i-CLD link was added to the f-CLD arrowed line. This process was repeated for each of the 41 i-CLDs until all had been mapped to the f-CLD. A record of this process for each of the 41 i-CLDs is contained in the Supplementary Information (D.).

The novel-format f-CLD, consisting of colour-coded and weighted components, resulting at the end of this final step is presented in Fig. 5.

4. Results and Discussion

The new empirical evidence base and novel-format CLD of ﻿ climate change, food insecurity and societal collapse in contemporary society resulting from the application of our original methodology (Section 3) are discussed in turn below.

4.1. Empirical evidence base of climate change, food insecurity and societal collapse in contemporary society

The new empirical evidence base (Section 3, Step I), along with its colour-coded typology (Section 3, Step II), is presented in Fig. 4. It consists of 41 evidence points, of which 9 examine the natural mortality (i.e. starvation, with respect to food insecurity), 20 the conflict mortality and 12 the emigration societal collapse proxy, alongside other human and natural world system factors. We discuss three key aspects of the evidence base, namely temporal and spatial distribution, data-driven method distribution, and advantages of each data-driven methods, below.

The temporal scale and granularity of study varies across the evidence base; however, our methodology limited the possible scale of study to the period from 1990 to present, representative of contemporary society. Within this period, approximately half of the evidence points cover a scale of less than one decade and the other half a scale of greater than one decade. Approximately half of the evidence points conduct analyses at yearly granularity and the other half conduct analyses at granularity greater than one year, with only a few studies conducting analyses at monthly granularity. The spatial scale and granularity of study varies across the evidence base. Approximately one third of the evidence points investigate the system at a global scale, with the remaining two thirds focusing on regional or national scales, primarily in Africa as well as the Middle East and Asia. Approximately half of the evidence points analyse the causal pathway at sub-national granularity, with the other half primarily focusing on national-level granularity. This variation provided different coverage of the complex relationships within the system, which was informative for constructing our CLD.

The distribution of data-driven methods used across the evidence base is notably different for each societal collapse proxy. Evidence points for natural mortality mostly use collection/analysis of interview/ survey data. This is likely because the minimum daily food intake for human survival is well established;91 as such, statistical analysis of food and mortality data sets would not yield significantly new insights into thresholds whereas interviews/surveys can provide insight into an individual’s circumstances influencing this relationship. Evidence points for conflict mortality mostly use statistical analysis of existing datasets. This likely reflects the interest in rigorously curated conflict datasets, such as UCDP/PRIO,92 across the conflict and peace fields. Evidence points for emigration mostly use collection/analysis of interview/survey data, likely because this provides nuanced insight into an individual’s decision to migrate. It may also be due to data availability and quality challenges that limit quantitative statistical analyses, which are being addressed by groups such as the International Organization for Migration’s Global Migration Data Analysis Centre.93 Amongst these data challenges, it is important to recognise the issue of reconciling different types of voluntary and forced migration with causal drivers, given the complex social, economic and political factors at play; this challenge similarly applies to the other societal collapse proxies but is particularly noted in the migration studies. We observe from these studies that a food insecurity threshold for natural mortality is well established but thresholds for conflict mortality and emigration are not. Indeed, distinguishing causal drivers within datasets and defining quantitative thresholds for these determinants remains a ”grand challenge”.94

[FIGURE 4 REMOVED]

Each data-driven method offers different advantages. The ﻿ complex ﻿ systems models each describe “chunks” of the system at different scale and granularity. The models provide mathematical definition, are ﻿ calibrated to real-world data and enable quantitative simulation of key relationships in the system. The statistical analyses quantitatively examine relationships between a dependent variable and one or more independent variables within the system, which can be used as a mathematical basis for extending ﻿ modelling capabilities. The collection/ analysis of interview/survey data provides insight into qualitative aspects of human perspective and decision-making that quantitative data sets cannot provide directly. The data-led case study/scenarios combine quantitative data with qualitative expert interpretation to better understand global trends and ﻿ forecasts. These latter two methods can also be used to inform the development of ﻿ modelling capabilities, the scenarios analysed by such models and their application in decision- making processes. Collectively, these different data-driven methods can yield useful insights into the nuances of relationships in the system of interest.

4.2. Causal loop diagram of the climate change, food insecurity and societal collapse in contemporary society at global scale and national granularity

The main result of this chapter is the CLD (the f-CLD from Section 3, Step V), presented in Fig. 5. It structures the relationships between ﻿ climate change, food insecurity and societal collapse as described in our new empirical evidence base (presented in Fig. 4 and discussed in Section 4.1). We discuss three key aspects of the CLD, namely insights related to the spread of empirical evidence, the qualitative ﻿ complex system depicted, and quantitative ﻿ complex system ﻿ modelling, below, alongside consideration of well-established benefits and limitations of CLDs.

Our CLD is presented in a novel format that documents the spread of our empirical evidence base. We use line thickness and colour, respectively, to depict the density and type of the data-driven methods used by the empirical evidence points to analyse a given link between two variables.

Doing this aids comprehension of where existing work has been focused with respect to the ﻿ climate change, food insecurity and societal collapse causal pathway. It may also help with the identification of gaps in existing analyses. For example, we can see that the link between food insecurity and conflict has been investigated mostly by evidence points using statistical analyses (blue), whereas the links between food insecurity and migration, and food insecurity and natural mortality, have been investigated mostly by evidence points using interviews/surveys (green). This hints that it may be useful to investigate the former using quantitative statistics, and the latter using qualitative interviews/surveys, to gain further insights offered by the different data-driven methods as described in Section 4.1.

It is important to recognise that our CLD may show negligible density for important links or even be missing important variables and/or links, either because they have not yet been studied or because our key word search failed to identify evidence points that have studied them. For example, our study focused on the ﻿ climate change, food insecurity and societal collapse causal pathway, so the density of our empirical evidence is concentrated along links central to this pathway, whereas the links between peripheral variables in the system, such as between fertility and births, show a lower density of empirical evidence. Similarly, our use of the ﻿ population loss set of societal collapse proxies means that the evidence base details natural mortality, conflict mortality and emigration, whereas the institutional breakdown set are not detailed. In considering this issue, our methodology attempted to maximise the ﻿ rigour and transparency of our study by documenting the spread of our empirical evidence base to help make the reader aware of exactly how much and what type of evidence was supporting the CLD presented here.

Further, we can see that while empirical studies have linked ﻿ climate change via food insecurity to our societal collapse proxies of natural mortality, conflict mortality and emigration, we found no empirical studies linking these proxies to the explicit term of societal collapse. This was expected given the motivation of this study (Section 1) and is due to the fact that there are no contemporary events of societal collapse, under the same definition as those in the historical studies pre-dating contemporary society, that enable these links to be empirically studied.95

Having considered the spread of empirical evidence, we now consider the ﻿ complex system documented. A key benefit of CLDs is that they simply present a myriad of information in a single diagram; in doing so, CLDs enable comprehension of the structure and behaviour of ﻿ complex systems, including feedbacks, intervention points and far- reaching interdependencies.96 Our CLD visually depicts a system of 39 variables, 105 links and 32,000 feedback loops,97 integrating information from different fields including climate science, ﻿ food security, conflict, migration and health research.

Walking through the CLD at a high-level, we can see how ﻿ population growth and lifestyle emissions, influenced by institutional/demographic factors (e.g. emission reduction incentives), combine to directly drive ﻿ climate change. Similarly, they indirectly drive ﻿ climate change via consumer demand on food production, which produces emissions directly (e.g. ruminant livestock) and indirectly via industrial capital/ output (e.g. processing factories). The environmental risk factors (e.g. extreme weather events) of ﻿ climate change may cause losses of food production either directly (e.g. plant disease) or indirectly via agricultural input availability (e.g. loss of water source for irrigation). A country’s food availability is influenced by domestic food production and international food trade. Food ﻿ accessibility is influenced by its food price, which responds to domestic (e.g. cost of food production and distribution) and international (e.g. international food price) markets, and institutional/demographic factors (e.g. food subsidies). Food utilisation is influenced by ﻿ infrastructure/services (e.g. ﻿ education) and institutional/demographic factors (e.g. cultural traditions). Food insecurity is underpinned by these three pillars of food availability, food ﻿ accessibility and food utilisation. For a given country, food insecurity can drive natural mortality (i.e. starvation), conflict and migration, contributing to ﻿ population loss, as well as economic shocks and socio- political instability, contributing to institutional breakdown, which exacerbates the risk of societal collapse.

Beyond a given country suffering increased natural mortality, famines (i.e. food insecurity) can place pressure on international humanitarian efforts (i.e. institutional risk factors). Conflict may occur domestically or internationally and can feedback to exacerbate food insecurity and institutional fragility (i.e. institutional risk factors). Potential mass emigration can increase pressure on food availability, natural resources and ﻿ infrastructure/services in the destination nation, which can lead to socio- cultural tensions (i.e. institutional risk factors) that fuel conflict. Food insecurity can also directly contribute to institutional risk factors such as social unrest, political instability and economic inequality, which increase the risk of societal collapse due to institutional breakdown, that may also ﻿ cascade internationally. While already fragile ﻿ states are expected to be hit the worst directly, these insights reveal the indirect ramifications of ﻿ climate change on our globalised society,98 with serious consequences for humanity’s ”existential security”.99

While some of these relationships may appear obvious, it is the act of bringing this information, which may otherwise be siloed and thus preventing consideration of the full story, together in one place that is of value.100 In doing so, our CLD attempts to provide readers with the opportunity to explore the ﻿ climate change, food insecurity and societal collapse causal pathway, consider worst-case scenarios that we want to avoid, develop transformative narratives of “where we want to go” and think about interventions that may help us attain this desired future.101

It is important to appreciate that CLDs are only as good as their information inputs; our CLD documents relationships based on information portrayed in our empirical evidence base as well as our interpretation of that information. As such, there exist challenges and limitations.102 For instance, CLDs may mask variability of relationships in different contexts and locations, because they can only depict a single scale and granularity. The portrayal of explicit causality between variables in a CLD is a challenge as this can often work in both directions rather than one. CLDs can often become either too complicated or too simplified, which undermines their usefulness. In considering each of these issues, our original methodology attempted to maximise the ﻿ rigour and transparency of our study by first documenting the information in each evidence point with an i-CLD and then consistently applying, and recording, the iterative process of reconciling the variables and links from each i-CLD to construct the f-CLD at the selected global scale and national granularity. In doing so, we sought to enable the reader to be aware of the nuances of the different scales and granularity of information underpinning our CLD, as well as our process of carefully reconciling causality, over 950 variables to 39 variables and 1150 links to 105 links to maximise the information conveyed while balancing readability.

It is also important to note that, due to their qualitative and static ﻿ nature, CLDs do not enable us to comprehend the dynamics of the system, including nonlinear and emergent behaviour, non-intuitive quantitative results and time delays.103 Complex systems models, although with their own challenges and limitations,104 provide the opportunity to quantitatively analyse the dynamics of a system and gain insights into the potentially far-reaching impacts of our decisions.105 However, ﻿ complex ﻿ systems models that explicitly examine societal collapse in contemporary society are underdeveloped. The World3 system dynamics model106 — an evidence point in this study (refer to Supplementary Information D).107 — is the eminent model of relevance, with only a limited number of studies building on it. World3 examines the potential for “overshoot-and-collapse” given ﻿ population and industrial growth within the finite carrying capacity of the natural world system, implicitly accounting for ﻿ climate change and explicitly accounting for food availability.

The information contained in our CLD and empirical evidence base may be useful in identifying and informing opportunities to improve these existing ﻿ complex systems ﻿ modelling capabilities for ﻿ climate change, food insecurity and societal collapse scenarios. For example, our CLD highlights important factors at global scale and national granularity that World3 does not incorporate because it is defined at global scale and granularity.108 World3 does not distinguish heterogenous characteristics of nations, such as distribution of ﻿ population or geographic endowment of natural resources. It also does not account for international interactions, such as food trade, conflict and migration. Relatedly, World3 evaluates societal collapse only by natural mortality (defined by food availability, age and pollution) and does not include the other two ﻿ population loss secondary determinants, as noted in the previous sentence, nor the three institutional breakdown secondary determinants. While our empirical evidence base may provide useful direction to datasets, it is important to note that quantitatively defining these relationships, particularly thresholds as discussed in Section 4.1, remains a key challenge of developing ﻿ complex ﻿ systems models. Nonetheless, given that individuals associate with national identity, business governance and policy-making are concentrated at national level, and international interactions underpin the functioning of contemporary society it could be valuable to model societal collapse risk profiles of different nations to inform the prioritisation and development of intervention strategies.

[FIGURE 5 REMOVED]

5. Conclusions and Future Work

This chapter identified an empirical evidence base of ﻿ climate change, food insecurity and societal collapse in contemporary society and structured the evidence base using a novel-format CLD defined at global scale and national granularity.

Two types of future work could extend from the results of this chapter. Identification of gaps in the spread of evidence across the CLD may guide future data-driven efforts to examine these causal relationships and define thresholds. The CLD and evidence base may be used to develop quantitative ﻿ modelling capabilities, particularly by transforming the structure of World3 to account for heterogenous national characteristics and international interactions. Three types of future work could extend from the methodology and literature synthesis. The causal pathway examined in this chapter could be further detailed by re-applying the methodology using the institutional breakdown set of societal collapse proxies instead of the ﻿ population loss set. The methodology, using either set of societal collapse proxies, could be applied to detail other causal pathways between ﻿ climate change and societal collapse. The methodology, excluding the contemporary time- period limitation, could be applied to document the information in the historical studies identified in the literature review. Similarly, the methodology could be applied to construct CLDs at different scales and granularities.

It is hoped that this chapter has contributed to developing our understanding of the causal pathways through which ﻿ climate change poses an ﻿ existential risk to humanity and facilitates opportunities for future work.

[REFERENCES OMITTED]

[CHAPTER 14 BEGINS]

Highlights:

• In this short chapter the authors draw on several research strands and papers within CSER to offer a theoretical reflection on how to think about catastrophic climate change and what Existential Risk Studies can learn from climate change research.

• This is intended to build on the previous chapter, in which Catherine Richards, Richard Lupton, and Julian Allwood provide an empirical assessment of one highly concerning risk cascade involving climate change and highlight its potential contribution to global catastrophic and existential risk.

• Climate change is one of the most empirically well-studied risks and has deep links to pre-existing bodies of literature, such as disaster risk management, environmental studies, and food security.

• Drawing on these studies and more, the chapter reflects on how to frame research questions in existential risk, what causes catastrophic climate change to be neglected by climate and existential risk researchers alike, and how to incorporate assessments of response risk and co-benefits into thinking about catastrophic climate change.

This short chapter brings together a number of important ideas and draws readers attention to other extant bodies of literature. The relative value of ﻿ co-benefits approaches is discussed in other chapters in this volume, including Chapter 4, in more detail. The dangers of ﻿ response risks are further discussed in Chapter 2.

1. Asking the Wrong Questions for the Right Reasons

Within Existential Risk Studies it is common to hear people ask the question “is ﻿ climate change an ﻿ existential risk?”, and many who ask this question answer negatively, arguing that as a result ﻿ climate change is not an important topic of research within the field. However, whether it is answered affirmatively or not, this question is misguided. There are three reasons for thinking this. Firstly, it makes little sense on a probabilistic level; whether something will be a threat to our collective existence is not a binary matter, it is a question of likelihood. However, many researchers within Existential Risk Studies mistakenly conflict ﻿ existential risk with events that could be existential ﻿ catastrophes. Secondly, ﻿ climate change is not a single uniform process that will affect everyone in the same way; it is a set of diffuse impacts to different ﻿ exposed populations, interacting with different ﻿ vulnerabilities and ﻿ exposures, and activating different risk ﻿ cascades. As Richards et al. show, it will inevitably interact with a host of other threats (not only ﻿ food security and societal collapse, but even factors such as the explosivity of ﻿ volcanic eruptions or the emergence of zoonotic pathogens),1 and these can interact with one another to create reinforcing feedback loops or “global systems death spirals”.2 Finally, “﻿ existential risk” is too vague and arbitrary a concept for the question to ever be answered. All the definitions of ﻿ existential risk that have received the greatest public attention thus far, such as Toby ﻿ Ord’s, focused not in terms of an impact on humanity at any point in time but rather in terms of “the loss of long-term future value”;3 either referring to the author(s) particular vision of a high-tech intergalactic utopia, or a fuzzy undefined idea of “our potential”.4

Other authors have practised attribution substitution and sought to answer an easier question such as “will the direct impacts of ﻿ climate change make the Earth uninhabitable?” as a proxy for existential risk,5 or suggested agricultural impossibility as a proxy for ﻿ civilisational collapse at a given level of temperature rise.6 These are certainly more tractable questions, but they are also entirely different questions, and there is a danger in thinking that answering them is sufficient to assess the overall level of ﻿ climate risk.

We are better off reverting back to the common-sense definition of ﻿ existential risk as the risk to the existence of a given object, and specifying whether the object under threat is humanity as a whole (﻿ extinction risk), global industrial society (collapse risk), or something else entirely. We should be thinking of an overall level of risk emergent from a particular socio-ecological system, and how much ﻿ climate change influences this level.7 And the question we should be asking about this risk is what contribution, under certain scenarios, ﻿ climate change will make, bearing in mind that it will almost certainly be operating in tandem with many other drivers of risk.

Considering this revised question can also help to rectify a recurring problem in the ﻿ climate risk literature: using mean global temperature rise as the sole threat indicator. Authors and ﻿ activists alike have frequently made a direct link between the level of warming and the likelihood of global ﻿ catastrophe, with 4–6 °C being most frequently used as this terrible threshold.8 However, global surface temperature is only one of the ﻿ climate change induced factors we need to worry about. 3 °C of warming above pre-industrial levels could be entirely manageable if it occurs in a world of adaptive technologies, high levels of multilateral cooperation, wealth equality, trust in institutions, and the safe management of other ﻿ planetary boundaries. It could also be catastrophic in a world where other ﻿ planetary boundaries are transgressed, the international order is riven with conflict, lethal autonomous weapons are in mass production, and societies are scarred by inequality, low trust, and polarisation. Understanding the contribution of ﻿ climate change to Global Catastrophic Risk requires a more sophisticated approach which looks beyond the direct impacts of a given level of warming to think through fully formed climate scenarios. We believe that, when conceived of in this way, the risks associated with ﻿ climate change are more appreciable and it is far harder to argue that understanding them is unimportant; however, even if others disagree with this assessment, we still maintain that this is the right way to think about the problem.

2. Catastrophic Neglect

Given how poorly questions about catastrophic ﻿ climate change are often framed, it is hardly surprising that it has been a highly neglected subject of study, not only among ﻿ existential risk researchers but also among ﻿ climate change researchers. Even at the basic level of temperature rise scenarios, we give far more attention to studying the impacts of lower- end warming rather than high-end warming. Text-mining of IPCC reports shows that mentions of 3 °C and above is underrepresented relative to its likelihood (and impact),9 a finding that has been verified by both literature sampling and the reports of popular authors trying to summarise the climate risk science.10 If anything, this trend appears to have worsened over time with subsequent IPCC reports.111 The use of complex risk assessments to study climate scenarios has also been neglected: looking at compound hazards is already rare,12 let alone considering risk ﻿ cascades and integrated climate ﻿ catastrophe assessments. Yet catastrophic ﻿ climate change remains high on the public and political agenda, creating both a perception that this is a risk receiving far more attention than it is, and also an intellectual vacuum that is easily filled by poor quality research, ranging from speculative doom-mongering13 to overly simplistic neoclassical economic models.14

There are four key reasons for this oversight of extreme global ﻿ climate risk. First is international climate policy. The 2015 Paris Climate Agreement on Climate Change has channelled scientific attention toward the agreement’s goal of limiting warming to 2 °C above pre- industrial levels and pursuing efforts to stabilise it below 1.5 °C, as these are now the publicly stated goals of climate ﻿ negotiations (even if they are highly unlikely to actually be realised). Second, analysis of high-end warming scenarios and complex risk assessments are simply harder to do. The higher the warming gets, the more difficult it becomes to study, as these scenarios are more displaced for the current climatic niche. Moreover, complex ﻿ climate risk assessments involving multiple factors are far more challenging than a ﻿ hazard-centric analysis focusing on only the direct impacts of mean global temperature rise. Third, climate scholarship has had a strong incentive to “err on the side of least drama”.15 Climate change has long been the target of fossil-fuel industry campaigns to sow doubt, not just on attempts to assess ﻿ climate change’s catastrophic potential but even the fundamental science, and this creates incentives for conservative science that builds consensus and does not risk exploring divergent hypotheses.16 Finally, many fear that discussing extreme risk could cause people to dwell too much on worst case scenarios, breeding fatalism and paralysis. However, this concern is misplaced; meta-analyses over hopeful vs. fearful messaging are mixed,17 and in any case this is a false dichotomy. One of the most referenced pieces for those concerned about the paralytic effect of fear does show that hopeful messaging is more poignant than fear but also that “worry” is even more effective than hope.18 The difference between worry and fear is one of degrees; the latter could even dissipate into the former over time. Furthermore, research should not be a PR exercise aimed to sway the public, in open democracies we have a duty to do honest risk assessments combined with clear recommendations for what can be done.19

Of course, these factors are only compounded by the consensus procedures of the IPCC, which seeks to synthesise scientific evidence for political purposes but is still often held up as a neutral arbiter of climate science. While useful, these procedures tend to produce lowest common-denominator outcome, which is precisely what is not needed when exploring extreme risks.20 This is an important point of reflection for any future efforts to build similar bodies aimed at bringing scientific research to bear on the governance of other global risks.

3. The Risks and Rewards of Responding

Climate change is inherently tractable and we already have the technologies we need to stop creating it, albeit without the institutions to fairly distribute them with a sufficient level of urgency. However, responding to risks like ﻿ climate change can incur risks of its own. Indeed, the IPCC, in its risk concept notes to the sixth assessment report, does not just discuss the usual three determinants of risk, ﻿ hazard, ﻿ vulnerability, and exposure, but also identifies “﻿ response risks”.21 Others have suggested that response should be added to the classic list of determinants.22 In some cases, responses may be far worse than the initial perceived risk, that is, they are iatrogenic: the treatment is worse than the disease.

Existential risk is especially prone to ﻿ response risks due to its scale, severity, and often speculative ﻿ nature. For instance, at the extreme a speculative fear of dispersed ﻿ weapons of mass destruction could justify a mass surveillance state.23 In general, there is always the potential for concerns over global risk to justify a Stomp Reflex — the abuse of emergency powers which inappropriately empower those atop a hierarchy and shield them from scrutiny. 24 This is also true for climate change

Reacting to ﻿ climate change could lead to emergency responses, such as ﻿ stratospheric aerosol injection (﻿ SAI), in an attempt to manipulate the quantity of solar radiation hitting the earth and thus counter some of the impacts of ﻿ climate change. Existing data on the direct impacts of ﻿ SAI and its contribution to ﻿ systemic risk or triggering other ﻿ hazards is sparse. Preliminary analysis suggests that the greatest problem is the ﻿ latent risks of “﻿ termination shock”. If a calamity such as a nuclear ﻿ war deactivates the system for a prolonged time, then this could significantly accelerate warming. Hence ﻿ SAI shifts the ﻿ risk distribution by likely lowering the level of risk in an average scenario but fattening the tail or “worst-case” scenarios depending on how ﻿ SAI is deployed, to what degree it is used, and what geopolitical and ecological world it is dispersed into.25 On the other hand, there are also frequently neglected ﻿ co-benefits of climate mitigation policies, such as the public health benefits of eliminating coal smoke and other pollutants from our air.26

Such problems of ﻿ response risk are perhaps the most neglected. Yet they are precisely what the study of ﻿ existential risk needs to grapple with. This could include by using robust decision-making procedures, such as the minimax principle, to aid in selecting policy options under ﻿ uncertainty or using ﻿ deliberative democratic processes to combine ﻿ diverse perspectives and co-create effective policy responses.

#### Warming erodes ecosystem integrity, which is independently existential and collapses general nuclear deterrence.

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A third set of plausible scenarios stem from climate change’s broader environmental impacts. Apart from being a planetary boundary of its own, Steffen et al. (2015) point out that climate change is intimately connected with other planetary boundaries (see Table 1). Climate change is thus identified by the authors as one of two ‘core' boundaries with the potential “to drive the Earth system into a new state should they be substantially and persistently transgressed.” This transformative potential was elaborated on in subsequent work exploring how the world could be pushed towards a ‘Hothouse Earth’ state, even with anthropogenic temperature rises as low as 2 °C (Steffen et al., 2018).

[TABLE 1 REMOVED]

The connection between climate change and biosphere integrity (the survival of complex adaptive ecosystems supporting diverse forms of life) is particularly strong. The IPCC is highly confident that climate change is adversely impacting terrestrial ecosystems, contributing to desertification and land degradation in many areas and changing the range, abundance and seasonality of many plant and animal species (Arneth et al., 2019). Similarly, the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) has reported that climate change is restricting the range of nearly half the world’s threatened mammal species and a quarter of threatened birds, with marine, coastal, and arctic ecosystems worst affected (Diaz et al., 2019). According to one estimate, climate change could cause 15–37 % of all species to become ‘committed to extinction’ by mid-century (Thomas et al., 2004).

Disruption to biosphere integrity can have profound economic and social repercussions, ranging from loss of ecosystem services and natural resources to the destruction of traditional knowledge and livelihoods. For instance, desertification, which threatens a quarter of Earth’s land area and a fifth of the population, is already estimated to cost developing nations 4–8 % of their GDP (United Nations, 2011). Many other rapid regime shifts involving loss of biosphere integrity have been observed, including shifts in arid vegetation, freshwater eutrophication, and the collapse of fish populations (Amano et al. 2020). There is a theoretical possibility of still more profound regime shifts at the global level (Rocha, Peterson, Bodin, & Levin, 2018). However, the contribution of loss of biosphere integrity to GCR is yet to be assessed. Kareiva and Carranza (2018) argue that it is unlikely to threaten human civilization, due both to a lack of plausible mechanisms for this threat and the fact that “local and regional biodiversity is often staying the same because species from elsewhere replace local losses.” However, in their classification of GCRs, Avin et al. (2018) suggest the potential for ecological collapse to threaten the safety boundaries of multiple critical systems with diverse spread mechanisms at a range of scales, from the biogeochemical and anatomical to the ecological and sociotechnological. Note that both these studies were conducted for largely conceptual purposes and should not be taken as rigorous analyses of this risk, this topic warrants further investigation.

3.2. Classifying climate change’s contributions to global catastrophic risk

Climate change's contribution to GCR goes well beyond its impact on the earth system. Taking Avin et al.’s list of critical systems, we note that previous studies have mostly focused on the effects of climate change on physical and biogeochemical systems (e.g. global temperature and sea-level rise) or the lower-level critical systems that are most directly related to human health and survival (e.g. Heath Stress). However, these represent a very limited assessment of risk as it only accounts for climate change as a direct hazard/threat and our "ontological" vulnerabilities to it. A more comprehensive risk assessment must consider the higher-order critical systems threatened by climate change passively (through a lack of alternatives) and actively (through intentional design).

The probability of a global catastrophe is higher when sociotechnological and environmental systems are tightly coupled, creating a potential for reinforcing feedback loops. If environmental change produces social changes that perpetuate further environmental change, then this could actively work against our efforts at adaptation. When this change has the potential to produce significant harm, via human vulnerabilities and exposure, we describe such loops as ‘global systems death spirals.’ These spirals could produce self-perpetuating catastrophes, whereby the energy and resources required to reverse or adapt to collapse are beyond the means of dwindling human societies. Feedback loops like this could thus create tipping points beyond which returning to anything like present conditions would become extremely difficult. Global systems would shift to very different states in which the prospects for humanity would likely be bleaker.

In the rest of this section, we explore just one potential spiral, between an ecological system (the biosphere) and two sociotechnological systems (the human food and global political systems). We explore each system and its interactions. Fig. 2 illustrates our model of this spiral.

[FIGURE 2 REMOVED]

3.2.1. The human food system

Climate change’s impact on biosphere integrity (discussed in the previous section) could harm the human food system due to loss of ecosystem services, disruption of the cycles of water, nitrogen and phosphates, and changes in the dynamics of plant and animal health (Bélanger & Pilling, 2019). Crossing this planetary boundary is already having severe implications for global food security, including loss of soil fertility and insect-mediated pollination (Diaz et al., 2019).

Systems for the production and allocation of food are already enduring significant stress. The sources of stress include climate change, soil erosion, water scarcity, and phosphorus depletion. The natural resource base, arable land and freshwater upon which food production rely are being degraded. While global food productivity and production has increased dramatically over the past century to meet rising demand from an expanding global population and rising standard of living, these constraints and risks are increasing the vulnerability of our global food supply to rapid and global disruptions that could constitute global catastrophes (Baum, Denkenberger, Pearce, Robock, & Winkler, 2015).

Climate change will further reduce food security in at least three interconnected ways. First, it will affect growing conditions, including direct threats to agricultural yields from heat, humidity, and precipitation in many regions; although initially improving conditions in some (Lott, Christidis, & Stott, 2013). Second, it will increase the range of agricultural pests and diseases (Harvell et al., 2002). Third, it will increase the occurrence of extreme weather events that impair the integrity of food production and distribution networks, from production to harvest, post-harvest, transport, storage, and distribution, thereby increasing our vulnerability and exposure to supply shocks (Bailey et al., 2015). The IPCC estimates, with medium confidence, that at around 2 °C of global warming the risk from permafrost degradation and food supply instabilities will be ‘very high’, while at around 3 °C of global warming the risk from vegetation loss, wildfire damage, and dryland water scarcity will also be very high (Arneth et al., 2019). Very few studies have considered the impacts of 4 °C of global warming or more; however, the IPCC highlighted one study finding that any potential agricultural gains from climate change will be lost by this point and there could be a decrease of 19 % in maize yields and 68 % in bean yields in Africa, an 8 % reduction in yields in South Asia, and a substantial negative impact on fisheries by 2050 (Porter et al., 2014). Furthermore, multiple extreme weather events could disrupt food distribution networks (Bailey and Wellesley, 2017).

While there are opportunities to adapt, disruption to the entire global food system cannot be resolved via food aid alone. Indeed, there is the potential for isolationist or heavy-handed responses that would do more harm than good. Given the high degree of interconnectivity and feedback within the global food system, our initial research suggests that any one of these climate change effects could trigger scenarios that would critically undermine the global food system’s ability to meet the minimum nutrition for well-being; making food security for all an unachievable goal, let alone rise to the challenge of continuing to grow (A. Tzachor, 2019, 2020); this would constitute what Kuhlemann (2019) terms a ‘threshold of significance.’

3.2.2. The global political system

Disrupting the global food system can create and exacerbate conflict and state failure (Brinkman & Hendrix, 2011). However, once again, this needs to be seen against the backdrop of a global political system under stress, with climate change as a significant contributing factor. Climate change influences political systems in many ways, from being a locus of activism and a stimulus for reform to driving rising inequality and population displacement (Arneth et al., 2019; Diffenbaugh & Burke, 2019). This is not a new phenomenon, changes in the climate are believed to have contributed to conflict between people and states throughout human history, driven by resource scarcity, population displacement, and inequality (Lee, 2009; Mach et al., 2019). As part of a comprehensive risk assessment of climate change, King et al. (2015) conducted an extensive literature review on climate change and conflict and used this to inform a series of international wargaming exercises. These found that climate change is expected to increase international conflict while highlighting the role that population displacement, state failure, and water and food insecurity would play in this (see also Mach et al., 2019; Natalini, Jones, & Bravo, 2015).

Quantitative studies of the impact of climate change on violence and conflict have provided more mixed results. A survey of empirical studies by Detges (2017) found that there may be multiple differing trends: extreme weather events appear to have more significant effects on violence than do long-term climate trends, while levels of small-scale conflict and interpersonal violence appear to be more affected than large-scale conflicts and international war. Empirical studies also highlight how climate change’s impact on conflict is predominantly as a risk multiplier and intensifier. Thus, climate change may contribute more by increasing our vulnerability to other conflict-inducing factors, such as loss of livelihood, forced migration, environmental change, and food insecurity, than by acting as a direct cause of conflict (Abel, Brottrager, Cuaresma, & Muttarak, 2019; Hsiang, Burke, & Miguel, 2013; Schubert et al., 2008).8

Of particular relevance to GCR is the effect of climate change on the risk of nuclear war (Parthemore, Femia, & Werrell, 2018). However, to our knowledge, this has never been rigorously assessed, although the potential is certainly there. One recent model of the risk of nuclear war highlighted how varied, and common, incidents with the potential to trigger a nuclear exchange are (Baum, de Neufville, & Barrett, 2018). It outlined 14 different causal pathways to an exchange, including the escalation of conventional wars and international crises, human error, and the emergence of new non-state actors. For all but two of these, they identify historical examples of potentially precipitating incidents, with 60 incidents in total (i.e. a little less than one a year). This suggests that the absence of nuclear war was less due to a lack of potential causes, tan the global political system’s ability to defuse them. Thus, the real significance of climate change may be its capacity to undermine this system: the combination of social, political, and environmental disruption, a lingering sense of global injustice, and rising food, water, and energy insecurity could increase the probability that crises escalate or that false alarms are mistaken for genuine emergencies. This topic needs further research.

3.3. The emergence of a global systems death spiral

Yet, we should not conclude that a nuclear exchange is the only, or even most likely, scenario in which political instability might produce a global catastrophe. Conflict and political instability, even of moderate severity, are themselves two of the most significant drivers of biodiversity loss due to breakdowns in monitoring, governance, and (public and private) property rights (Baynham-Herd, Amano, Sutherland, & Donald, 2018). This closes a potentially reinforcing feedback loop between loss of biosphere integrity, food insecurity and political breakdown.

The mechanisms by which these cascading failures might spread include many of the natural, anthropogenic, and replicator effects identified by Avin et al. (2018), making them harder to contain. At the natural level, climate change involves changes to the global atmospheric and biogeochemical systems and poses other naturally spreading harms, like global ecological collapse. At the anthropogenic level, the global interconnectedness of sociotechnological systems means that while small shocks are easier to recover from, larger shocks can be harder to contain and control. Finally, biological and informational replication can also spread the negative impacts of climate change, from vector-borne diseases and invasive species to climate fatalism and dangerous geoengineering technologies.

Given these numerous spread mechanisms, critical system failures could precipitate global catastrophes. Furthermore, the spiral we have explored is unlikely to be the only set of interlinked systemic disruptions that climate change could initiate (other death spirals could involve bio-insecurity and disease), nor are these the only causal connections between these three systems. Until we understand the nature of such death spirals better, we must act cautiously. We now turn to consider what this would mean.

#### Only the plan embeds sustainability into production across entire industries. Sectoral bargaining enables workers to slow destructive production, restructure food and energy systems, and prevent climate-driven supply shocks.

Ben **Crawford 25** – Grantham Research Institute on Climate Change and the Environment @ London School of Economics and Political Science; David Whyte; Centre for Climate Crime and Climate Justice, Queen Mary University of London; International Labour Review, “Workers on the front line of climate change: Re-politicizing trade union climate action,” vol. 164

The connection between eradicating precarious work and achieving economic, social and environmental sustainability, as made in SDG 8 (see introduction), rarely figures in public debates on the challenges of climate change. Yet it is not possible to achieve **environmental sustainability** when economies are built upon the foundations of **precarious labour**. We cannot develop new ways of working and organizing energy, food, water, clothing and essential services in ways that protect the natural world if they remain based on a system of labour that forces costs and working conditions down, moves to where both labour and nature can be exploited the most and encourages the deployment of both labour and capital in ways that accelerate climate change. This is not merely a moral but also a practical issue, with three core aspects.

First, workers who are less able to **challenge employers** in any significant way are less empowered to push back **against anything**. For this reason, the most significant factor in the occupational and **environmental health** of workers is their job status, with trade **union membership** being closely related and considerably reducing, more than any other factor, the chances of a worker being killed or injured at work (Walters and Quinlan 2019). **Job security** becomes crucially important in achieving **environmental sustainability** for exactly the same reason. When workers are on permanent contracts and enjoy better **pay and conditions**, they are better able to push for **environmental improvements** in their daily lives: chemical workers are better able to demand shorter times for hazardous tasks or demand **controls** on **air pollution**; agricultural workers are better able to limit their exposure to the chemicals they are forced to use; and workers on meat processing production lines are better able to fight for slower line speeds. The same goes for **transport** workers, **factory workers** and so on (e.g. Gouveia and Juska 2002; Gordon 1999).

Second, precarious work undermines the democratic and participatory dimensions inherent in any planned just transition. An externalized, **vulnerable** and transitory workforce enjoying few rights is unlikely to be able to **develop skills** and apply them towards the **transition** to **genuinely sustainable production** models. Precarious work directly undermines the central mechanisms for greater economic democracy – trade union organizing and representation of workers. It follows that it is harder to organize workplaces and **sectors** characterized by a high level of **casualized** forms of labour contracting (Shamir 2016). Casualized workers also face much higher barriers to participation in union and employer structures of representation. For example, the McDonald’s European Works Council – a statutory mechanism designed to mitigate the harmful impacts of the economic decision-making of multinational corporations across the European Union – has been subject to “management capture” since its inception, precisely because of the high proportion of McDonald’s workers who are on temporary, zero-hours or part-time contracts (Royle 1999). Huge numbers of precariously or informally employed workers worldwide are excluded from mechanisms that allow them to exercise their voice and shape the transition (Novitz 2023). Many of these workers are exposed to environmental hazards in their work, such as street pollution or toxic substances on waste dumps, but they have no means of challenging or changing their situation (ibid., 6). The basic possibility of contesting harmful decision-making is eroded by the employment model. When we consider the types of engaged, deliberative and strategic worker-led processes that must underpin any just transition, it is clear that such processes will fail where the most vulnerable and precarious workers are excluded.

Third, **precarious labour conditions** also oblige workers and unions to defend “**dirty**” jobs and **industries**. In the absence of a **planned**, **clear pathway** to **sustainable industries**, workers and communities face an **existential threat** and must **resist change**. In economies based upon dirty jobs, workers may not be in a strong enough position to demand **clean jobs**, even if they are organized in ways that allow them to do so. In a recent survey of UK oil workers, 81.7 per cent responded positively to the question. “Would you consider moving to a job outside of the oil and gas industry?” (Jeliazkov, Morrison and Evans 2020, 7). The follow-up questions were even more revealing. Of those that answered no, a majority said that “**job security**” was the most important consideration in this decision (ibid., 21). On the one hand, this response reinforces the link we make above between precarity and sustainability of the economy; on the other, it draws attention to the lack of control that workers have over the transition of their jobs away from carbon economies. Later in the survey, workers were asked whether they had heard of the term “just transition”. A full 91 per cent said that they had not (ibid., 9). This speaks volumes about the lack of discussion, let alone involvement, in the transition. **Workers** cannot be involved in a just transition when they have no **agency** in the process and are shunted from job to job, based solely upon employers’ decisions.

The countless examples of **trade unions** defending unsustainable jobs have to be understood in the context of a capitalist labour market that **forces people** to **make choices** they do not want to make. If people had a real choice over where they could work, it is hardly likely that they would choose to work in the oil or chemicals industries. People do not choose a job or a career seeking out acute occupational or **environmental hazards** or high risks of death. Workers make decisions to accept jobs under conditions that they do not choose. This basic insight suggests that workers’ precarity in the labour market is a fundamental dimension of **climate bargaining**.

Precarity is the reason why some of the dirtiest jobs and jobs carried out in the most dangerous places are those presented as “just transition jobs”. The construction of wind farms in the North Sea is based on almost identical conditions as those experienced in the early days of the North Sea oil and gas industry. Indeed, similar vessels are being used to construct the wind turbines – with the same stories emerging of a lack of occupational safety on board – similar work patterns are applied and workers face similar levels of precarity (Jeliazkov, Morrison and Evans 2020). In another example, the death, injury and illness rates in the waste industry, which is crucial for reducing the environmental impact of industrial by-products and for recycling, are among the worst in any sector. For example, in the United Kingdom, the fatal injury rate in the waste and recycling industry is, by some estimations, around 11 times the national average (Circular 2022). One academic review of the UK waste industry found:

[A]n increased prevalence of respiratory, gastro-intestinal and skin complaints in workers exposed to compost relative to controls. They may also be at increased risk of extrinsic allergic alveolitis, allergic bronchopulmonary aspergillosis, occupational asthma and abnormalities of lung function. Workers involved with the recycling of batteries and cables may be at risk of lead poisoning and exposure to other heavy metals. (Poole and Basu 2017, 626)

Workers are currently absorbing the considerable health costs of many so-called “green jobs”. Levels of risk and exploitation associated with just transition jobs in the global South are on a different scale. An epidemic of health problems related to asbestos exposure is expected to unfold in Bangladesh as a result of the ship breaking industry (Muralidhar, Ahasan and Khan 2017), which is increasingly positioned as a “recycling” industry. Workers in this sector are also exposed to persistent organic pollutants and heavy metals (Ruhan Rabbi and Rahman 2017). Electronic waste recycling in major hubs like Accra in Ghana and Lagos in Nigeria is based on informal economies in which children and the poorest workers are exposed to heavy metals and other highly dangerous toxins over long periods. China is now also a major centre for an informal economy in electric recycling (Chi et al. 2011). These economies rely on cheap labour, reproducing the same old colonial inequalities and transferring toxic economies from North to South (see also Zbyszewska and Maximo 2025 – this Issue). At the same time, these industries further enable wealth to be transferred from South to North (Fevrier 2022). To this we can add the appalling conditions of workers mining the metals needed for batteries (Arvidsson, Chordia and Nordelöf 2022). Indeed, the intensification of the political economy of speed combined with the extreme precarity that structures these industries means that this “just” transition will inevitably mean an even steeper rise in the rates of death, injury and illness in this sector (McKie 2021).

This is a crucial lesson that the trade union movement has been slow to learn: precarity and casualization create conditions that prevent the development of “clean jobs” and more environmentally sustainable ways of working. There is an umbilical relationship between the precarity of jobs – unsustainable labour practices – and the unsustainable environmental practices that stand at the foundations of our economy. For this reason, worker and trade **union campaigns** against precarity in the labour market are **indivisible** from worker and trade union **climate campaigns**. Such campaigns must take account of the way that relationships of precarity across the **entire supply chain** are implicated in the export of hazards to workers and communities in the global South.

The demand that just transition be based on secure jobs is too often couched in terms of what is “desirable” for workers, or in moral terms. Yet we are not simply arguing that this is something that trade unions should demand. As we indicate above, the **underlying solidarity** between labour and the rest of nature at **the front line of production** has another, crucial, dimension. We thus argue that it is essential for organized labour to challenge precarity for the development of environmentally sustainable economies. This connection between precarity, work intensity and sustainability is also linked to wider issues of working time and socially reproductive labour, most obviously in efforts to achieve working patterns that enable workers to live sustainably (Barca 2020).

This brings us directly back to the question of “common interests” raised in the previous section. **Challenging precarity** and slowing down production as part of the labour process are, by definition, confrontational. They require **collective power**, expressed as **industrial action**. Slowing production is **rarely agreed consensually** between employers and employees. This level of interference in the labour process generally requires a strike or another form of **industrial action**. Moreover, **employers**, especially if they are profit-making enterprises, operate in a **competitive environment** and generally cannot afford to lose control of the **rate of work**. If one employer’s workers slow down the labour process, it can allow other employers to **strengthen** their **market position**. In many circumstances, this may mean that they are able to increase productivity, capture more profit and extend their control over more workers and supply chains. In capitalist economies, no matter how secure jobs are, job security is dependent upon a combination of decisions made by employers and policymakers to protect particular jobs or subsidize particular sectors. Ultimately, the viability of jobs depends upon the viability of firms.

The above provides an outline of the absolute limits of climate bargaining. Workers seeking a more sustainable work rate may instead find themselves out of a job. Accordingly, **workers** and their **organizations** need to work as **collectively as possible** within and beyond their **sector**. In other words, they need to think about climate organizing at the workplace, **supply chain** and **sectoral levels** precisely because the **power of employers** to simultaneously **exploit workers** and **nature** lies at **those multiple sites simultaneously**. We now turn to discuss some examples of industrial responses to climate change that demonstrate that it is possible to challenge these dynamics.

5. Transformative industrial action

In September 2019, corporate **Amazon workers** in the **U**nited **S**tates engaged in a lunchtime walkout to **protest** against the corporation’s lack of action to reduce its **environmental impact**, corporate donations to climate change deniers and links to the **fossil fuel industry** (Ghaffary 2019). This action was followed up in May 2023 with further walkouts by workers organized by the employee advocacy group “Amazon Employees for Climate Justice”. This time the action was not only a protest against the lack of progress towards reducing Amazon’s climate impacts but was also linked to its environmental impact on employment models, including through job cuts and reduced worker autonomy over home working. The workers argued that the top-down approach to home working contradicted Amazon’s positions on diversity and inclusion, affordable housing and sustainability (Palmer 2023). One month later, a group of over 60 Amazon contract drivers **picketed** outside Amazon’s San Bernardino warehouse, blocking trucks from entering or leaving the facility (Duran 2023). In 2022, the drivers had signed the first ever union contract with an Amazon delivery service provider (DSP) (Asher-Schapiro 2023). The drivers had mobilized in response to the risks of **heat exposure** as a result of worsening heatwaves driven by **climate change**. They cited examples of drivers passing out during the 2022 heatwave, which was so severe that a state of emergency was declared. The 2022 heatwave also saw walkouts by Amazon warehouse workers over excessive heat and UPS drivers making cool-down breaks and air conditioning a key part of their contract negotiations (ibid.). Despite signing the collective agreement, the DSP owner emphasized their lack of control over health and safety issues, given that working time and schedules are decided by Amazon’s algorithm, and that Amazon has control over the replacement and repair of vans and the associated problem of poor or broken air conditioning units (ibid.). Organizers within the Amazon division of the International Brotherhood of Teamsters and workers in other DSPs highlighted the huge challenges facing the wider drive to unionize the 2,500 Amazon DSPs in the United States, citing the “**restrictive**” relationship between Amazon and its contracting companies and the risk of **contract termination** (Duran 2023; Asher-Schapiro 2023).

Together, these responses capture the **multifaceted challenges** for sustainable work and production, linking precarious **work**, work intensification, workers’ autonomy, health and safety, carbon emissions and **climate change** adaptation. The **fragmented positioning** of these groups of workers highlights the barriers posed by precarity to **climate organizing**. These responses also indicate the **latent solidarity** across the **supply chain**, suggesting that there is scope for more **integrated approaches** to political, if not **industrial, mobilization**.

In the cases described above, union climate change action remained at the **workplace level**. However, the idea of developing **latent cross-sectoral supply chain** solidarity as a coordinated industrial response to **climate change** has featured in some other strategic responses. It was articulated by the International Union of Food, Agricultural, Hotel, Restaurant, Catering, Tobacco and Allied Workers’ Associations (IUF) in a recent research paper on climate organizing in intensive livestock production (IUF 2022). The report sets out a template for **building** trade **union power** along the livestock supply chain as an **imperative** for **transforming** the **global food system**. This links the fundamental demands of **workers** in the **food system** – for a living wage, stable employment and a safe working environment – to the **models** of **agricultural production** that are generating **huge environmental impacts**. Alternative production models, such as **agroecological methods**, and models to support better local **democratic control** over **production** are explored in terms of their direct correlation to more effective workers’ rights.

A recent research and strategy document by the Unite (the Union) Research Department calls for a **new approach** to collective bargaining that coordinates **workplace reps** across industries and **sectors** in recognition “that industries are now organised so that all workplaces exist within supply chains” (Unite Research Department 2021). The strategy was developed to counter UK employers’ responses to the shocks to the globalized production and trade model caused by the withdrawal of the United Kingdom from the European Union and the impacts of the COVID-19 pandemic. While climate change is not the direct focus of the report, the increasingly **disruptive** effects of extreme weather as a result of global warming have already driven employers and governments to begin reassessing **risks** within **supply chains** (Woetzel et al. 2020). These strategies have been overwhelmingly at the expense of workers, as employers cut costs and seek “flexibility of supply”. In reaction, Unite aims to turn the very characteristics that make **fragmented supply chains** harmful for workers into a source of **strength** by understanding and organizing the whole **production chain**. Reps are encouraged to develop an **understanding** of the **vulnerabilities** to **trade impacts** and employer strategies (such as relocation or mothballing of sites) and then to build a picture of how their **direct employer** is situated in the **supply chain** or corporate **structure** (for example, by identifying the top ten suppliers and top ten customers). **Strategic choke points**, including both **structural vulnerabilities** and the strength of **union organizing**, at each stage can then be used as a guide to **build power** across the chain by **establishing relationships** with reps and supporting **organizing** efforts. This supply chain mapping method has also been brought into the Unite climate education and research training sessions in the food, drink and **agriculture sector** (Unite the Union 2022).

In the context of climate bargaining, this kind of mapping can be used to identify the **upstream** and downstream **environmental impacts** of the **production model**, the exposure of workers across the supply chain to the impacts of climate change and the potential for building workers’ power to challenge these **harms** by driving change in both the employment and **production models** simultaneously. In contrast to the “business unionism” approach to climate change described above, a focus on workers’ structural and **associational power** is the first step in building an industrial response to the social and **environmental harms** generated by contemporary systems of production.

6. Conclusion

The great contribution of the eco-socialist literature is its consistency in showing how it is impossible to separate the exploitation of labour from the exploitation of nature in capitalism: it is one and the same process. Accordingly, concepts of “sustainable work” need to start by articulating workers’ material interests in resisting the core dynamics of the labour process we have identified. Resisting the political economy of speed and endemic precarity thus becomes a fundamental form of climate action. We have argued that it is precisely because there is an underlying solidarity between workers and the rest of nature that it is in the general interests of both to slow down the speed of production processes. At the same time, challenging labour precarity is a prerequisite for building sustainable economic alternatives.

It does not of course follow that all forms of industrial action will stand in alignment with environmental interests. However, this article has highlighted a latent alignment that the **labour movement** can strategically engage in **developing bargaining strategies** that are de facto **climate bargaining strategies**. It needs to find a basis for a common response to transition and build **cross-sectoral demands** for a reversal of precarious work and casualization in bargaining as a **climate demand**.

Although coordination is not a guarantee of victory in workplace struggles, in the absence of any serious proposals for a transformative industrial strategy in the political mainstream, the trade union movement needs to contemplate how it will use its political space. How can workers’ organizations develop a new industrial strategy? Is the trade union movement capable of developing its own industrial strategy by making sectors and different trade unions work together to set out the industrial change that is necessary?

There is not enough time to leave this to volunteerism or to a vague hope that employers will realize that they do indeed have a “common interest” with their workers on this issue. Class conflict at the workplace level is not stopped but is actually intensified by climate change. Although **strategic cooperation** on transition initiatives may be necessary, partnership approaches and business unionism are not a sufficient basis for achieving a sustainable economic system. This article has pointed to forms of resistance and action that are not often labelled as climate action but are the bread and butter of **industrial struggle**. This is the kind of struggle that is needed to sustain and build the foundations of a **sustainable world**.

#### Supply chain disruptions cause global war.

Bradley Martin 21 – November 15; Director @ RAND National Security Supply Chain Institute; RAND, “Supply Chain Disruptions: The Risks and Consequences”; https://www.rand.org/blog/2021/11/supply-chain-disruptions-the-risks-and-consequences.html

This definition of “national security” is broader than just the defense industry or military-related efforts; it also could encompass the very ability of a nation to ensure economic well-being, public health, and protection of a nation's key infrastructure. Supply chain disruptions cause general economic disruption and key commodity shortages, which then in turn can, in fact, drive aggressive national behavior and international instability. And ironically, this reactive aggressive national behavior can happen even if the health of a national economy itself depends upon continued international economic interdependence. Indeed, this very interdependence can create vulnerabilities. So a systematic effort, cutting across agencies and public and private sectors, could be one way to ensure these vulnerabilities are understood and mitigated.

Supply Chain Disruption and Conflict

Dispersed supply chains develop because actors find it's economically advantageous to seek the least-expensive and most-productive sources of supply. These dispersed chains develop for good reasons, but they create complicated interdependencies whose risks and vulnerabilities are sometimes not even understood, let alone mitigated.

While the reasons for creating these chains lie largely with private interest, the effects of disruption—which can come from sources ranging from malign human action to natural disaster—are rarely localized. When shortages occur in one industry, the disruptions in one area nearly always spill into adjacent companies and sectors. Whole economies feel the impact, not isolated actors.

The impact on vulnerable populations may be particularly dire. Supply chain disruptions do not just create higher prices and shortages among high-end consumer products, such as cars. They also affect more-basic commodities such as generic drugs or energy, increasing the cost of living and the provision of basic needs.

This kind of disruption can create instability more generally, promoting conditions for conflict between and within nations. For the most part, nations try to maintain access to markets and resources by peaceful means such as stockpiling, direct investment in partner nations, and use of other financial incentives. However, there is no guarantee that such competition will remain peaceful.

As affluent nations and individuals can find ways to mitigate shortages, they may create blocs of “haves” and “have nots,” where some actors have enough but others cannot meet basic needs. “Haves” may find ways to more directly change distribution, most likely at the expense of other “have nots.” Or “have” nations may try to forcefully safeguard what they have gained and work to exclude competitors. In all these cases, the actors are facing shortages, occasioned by interdependence, and seeking security for themselves in ways that actually promote wider international systemic instability.

Escalation of Conflict

In some cases, supply chain disruptions can have an even more-direct impact than general disruption, causing shortages of commodities the nation must have to ensure national security. This kind of disruption can go beyond matters of justice, equity, and general prosperity to threatening a nation's very ability to defend itself and look after its citizens. Some examples are pharmaceuticals and personal protective equipment, energy, food, raw materials used in manufacturing, and semiconductors used in multiple different systems including military applications. Such shortages can make the need for a national government to act more dire and immediate and thus raise the risk of conflict. In some cases, particular types of raw materials only exist in certain places, so shifting to more-secure sources isn't even possible.

Supply chain disruptions create both leverage for some nations and reasons for other nations to minimize leverage. For example, Taiwan currently dominates the market for semiconductors, which in some respects gives it leverage with other actors, including the mainland People's Republic of China (PRC). Semiconductors are capital-intensive—a new fabrication facility for semiconductors costs approximately $4 billion, with some estimates as high as $12 billion, and can take three or more years to build.

This does not even account for the skilled labor, and points to the difficulty of readily shifting production. As a result, Taiwan gains considerable leverage over the PRC and indeed the world. However, this very dominance, plus its proximity to the PRC and its dependence on the PRC for other commodities, may in fact raise the incentive for the PRC to take aggressive military action to ensure access to a key commodity. Such action could range from a “quarantine” to military threats to an actual invasion.

Aggressive action may stop well short of outright war, yet still be very dangerous for actors in the system. The problem of security vulnerability overall is complicated by the complexity and spread of supply chains across the world. A nation might not be able to successfully secure a commodity just by aggressive action against a single other nation. However, that action against another nation certainly could have the unintended effect of causing supply chains to fail in a more general manner. Aggressiveness, while understandable and probably predictable, might therefore also be extremely dangerous and unproductive.

Conflict and Instability

Nations have gone to war in the past over natural resource shortages or in an effort to secure key markets and labor pools. The need to secure resources and markets was an explicit premise in German and Japanese actions leading to World War II. Such conflict has occurred even during times of significant interdependence between nations, such as in the European system prior to World War I. Historically, nations have not yet resorted to war to ensure supply chain security, but it might be a mistake to assume that such action could never occur when circumstances become sufficiently dire. Interdependence does create incentives to cooperate to avoid disruption, but may offer few alternatives for some desperate nations if some part of the interdependent chain is broken.

#### The plan solves globally. Only sectoral bargaining gives workers the collective scale to drive a just transition.

Sharon **Block 19** – Professor of Practice and the Executive Director of the Center for Labor and a Just Economy @ Harvard Law School; 12/6; On Labor, “How Labor Law Could Help – Not Hinder – Tackling Big Problems”; https://onlabor.org/how-labor-law-could-help-not-hinder-tackling-big-problems

As the urgency of the climate crisis grows, the question of the role of labor in finding solutions also becomes more urgent. As OnLabor has tracked, **significant parts** of the labor movement have expressed support for the **climate fight**. Labor groups joined the Global **Climate Strikes** this fall. Numerous alliances between labor and environmentalists have sprung up, including the **BlueGreen** Alliance, **T**rade **U**nions for **E**nergy **D**emocracy and the Labor Network for Sustainability. For the most part, these coalitions have focused on political alliances to add labor’s clout to legislative and policy fights on environmental issues. **Weaknesses** in our **labor law**, however, **hinder** workers’ ability to **effectively influence** big problems like the **climate crisis** at the **bargaining table**.

There can now be no doubt that workers are being affected **significantly** by **climate change**. The evidence is growing of the current – not prospective – danger to workers resulting from **rising temperatures** and **extreme weather**. This evidence that climate change is already affecting workers’ health and safety strengthens the case that **employers’ climate policies** are not political or public policy issues, but **workplace issues**. If our labor law can accomplish anything, it should be to give workers a channel for addressing the conditions of employment that threaten their lives and livelihoods.

Lately we are seeing workers trying to **enforce demands** that their employers address the climate crisis. Leaders of the “Bargaining for the Common Good” movement have made addressing the climate crisis a **focus** of their innovative **bargaining campaigns**. In September, Amazon workers at the Seattle headquarters **walked off** the job to protest the company’s failure to take bolder action on climate. OnLabor’s own Jared Odessky recently provided an overview in “In These Times” of provisions in collective bargaining agreements that address climate protection goals.

I fear, **however**, that these efforts to deal with **climate change** at the bargaining table are destined to have **limited success** because of the fundamental **structural problems** with our labor law. **Enterprise bargaining** severely **limits the scope** of what workers can accomplish through **bargaining**, including what they can accomplish on **climate**, because collective bargaining agreements apply only to one firm (at best). No **single employer** can make a meaningful **difference** in **climate change,** no matter **how much** the company reduces its **carbon footprint** or advocates for **clean energy policies**. A single employer at best can influence the after-the-fact effects of climate change, like giving workers more water breaks during periods of high temperatures. In this way, the NLRA’s enterprise-based bargaining system precludes workers from demanding a say in any issue that is bigger than what their own employer can tackle.

Moreover, the law’s definition of mandatory subjects of bargaining raises questions about whether unions in our enterprise-based bargaining system can even get the climate issue to the bargaining table.

I’ve written previously about how the NLRA’s narrow definition of mandatory subjects of bargaining is an impediment to workers being able to weigh in on the full range of issues in which they are interested, including the response to the climate crisis. To be a mandatory subject of bargaining, a proposal must not only be related to a term or condition of employment, it must also be within an employer’s influence or control. See Eastex, Inc. v. NLRB, 437 U.S. 556, 568 n. 18 (1978). If workers’ frame their objective in putting climate-related proposals on the enterprise-based bargaining table as impacting the climate crisis and reversing the trend of increasing temperatures, their proposals are going to fail the mandatory-subject test. No single employer can be understood to influence or control climate change.

Moving to **sectoral bargaining**, however, would **expand the scope** of collective bargaining agreements in a way that would enable unions to better **address climate change**. Imagine if workers could create a **coordinated movement** to demand in bargaining that lots of employers reduce their **carbon footprints** – maybe together employers could actually **impact climate change**. The climate crisis is so massive and all-encompassing there are legitimate questions as to whether even a coordinated approach among employers could have a meaningful impact. Legislation that mandates radical change in the **U.S. climate policy**, along the lines of the Green New Deal, is necessary to **save the planet**. I suggest, however, that a worker-driven **coordinated sectoral policy** on climate change could be a **positive step** in making big needed changes.

Although such a worker-driven industry-wide approach is **not possible** under the NLRA, **labor law reform** could move the U.S. to a **sectoral bargaining system**. Take, for example, how a sectoral approach could work in the auto **industry**. Many environmentalists believe that a big move in the U.S. to **electric cars** is a necessary step in reaching the **U.S. obligations** under the **I**ntergovernmental **P**anel on **C**limate **C**hange. What if all of the auto manufacturers in the U.S. were at a **sectoral bargaining table** where the unions made a demand for a transition to **electric vehicles**? **The size of the U.S. market could influence the global market** for electric cars. Even if that is not true, **sectoral bargaining** in the U.S. also could facilitate a **global sectoral push** for more electric cars. Let’s now imagine if unions engaged in a **transnational strategy** to pressure automakers around the world to increase **production** of electric vehicles. Because most of the **rest of the world** engages in **sectoral bargaining** such **coordination** is not **beyond the realm of possibility**. If successful, we could be on our way to **tackling** one of the most significant contributors to **carbon pollution**.

Electricity generation is another sector that must be reformed to arrest the climate crisis. Unions that represent workers in the **energy sector** could bring **clean energy** generation proposals to a **sectoral bargaining table** and negotiate the terms of a **just transition** – one that leads to **cleaner energy** and support for workers whose jobs change as a result of such a transformation. **Germany** recently engaged in such an exercise. In January 2019, the German Coal Commission brought together industry players, unions and other stakeholders to negotiate an agreement to phase out coal by 2038. This form of **sectoral bargaining** also negotiated **financial support** for coal miners and their communities. While the Coal Commission was not formally a part of Germany’s sectoral bargaining system, it demonstrates the potential of an industry-wide approach to tackling big climate goals.

Facilitating **sectoral bargaining** over climate crisis strategies would be beneficial for two reasons. First, it would create a **new tool** to **put pressure** on corporations to change their behavior. So far, relying on voluntary corporate commitments or our gridlocked political system has not yielded the results we need. Second, it would ensure that workers have a direct voice in influencing how corporations address the climate crisis. Workers are already on the front line of suffering from our inaction on climate – it makes sense to reform labor law so they can have a chance to spur much needed action.

### Extra

#### Agricultural shocks cause global nuclear war.

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The urge by humans to self-destruct reached a climax in October 1961, with the detonation by the USSR of the ‘Tsar Bomba’, a device equivalent to 57 million tonnes of TNT - or, for comparison, 3,800 times more powerful than the weapon that razed the Japanese city of Hiroshima.1 Until recently, the most perilous year in human history was 1985, when the world’s nuclear arsenal swelled to a total of 61,662 atomic warheads2 before declining under various treaties and modernisation programmes to a total of 12,700 devices in 2022 (see Figure 4.1).3 What remains is, however, still far more than enough to extinguish the human species.

Despite the dwindling stockpile, the risk of nuclear holocaust has in fact increased. The Bulletin of the Atomic Scientists, which has maintained a vigil over the scale of the threat since it was founded by Albert Einstein and Robert Oppenheimer at the dawn of the nuclear age in the 1940s, set its Doomsday Clock at 100 seconds to midnight in 2021, and again in 2022. It said: ‘Accelerating nuclear programs in multiple countries moved the world into less stable and manageable territory last year. Development of hypersonic glide vehicles,

ballistic missile defenses, and weapons-delivery systems that can flexibly use conventional or nuclear warheads may raise the probability of miscalculation in times of tension.’4 The Bulletin continues: ‘An extremely dangerous global failure to address existential threats - what we called “the new abnormal” in 2019 - tightened its grip in the nuclear realm in the past year, increasing the likelihood of catastrophe.’ It adds: ‘Governments in the United States, Russia, and other countries appear to consider nuclear weapons more-and-more usable, increasing the risks of their actual use. There continues to be an extraordinary disregard for the potential of an accidental nuclear ,5 war.

The Bulletin argues that the threat is compounded by increased signs of instability and failure in Western dem-ocracies, epitomised by the assault on the US Congress in early 2021 by deluded Trump followers and a universal plague of false information that is confusing voters. At the same time, some nations are upping the ante in the nuclear arms race. China, for example, is threatening to double its existing nuclear arsenal: in late 2021 reports became public that the country is building up to 300 new nuclear missile silos in its western deserts.6 These appear to be additional to its existing 350-warhead stockpile. The UK, India, Pakistan, and North Korea are also increasing and modernising their nuclear arsenals to make them stealthier, more accurate, faster, more concealable, more flexible - so increasing the danger of their use. Such expres¬sions of ‘nuclear nationalism’, in an age of compounding mega-threats, are little more than a shortcut to species suicide.

Meanwhile, the emergence of a new generation of autonomous nuclear devices makes the likelihood of mass extermination by computer error or human misunderstanding even greater, in view of the many known near-catastrophes which have occurred since the nuclear age began.7 Now, by replacing humans in the decision-chain, robots and artificial intelligence (AI) may make their own independent decisions to unleash Armageddon (see Chapter 10).8

The greatest single risk of human extinction among the 10 catastrophic threats that comprise our existential emergency is still nuclear war. However, the core issue is that conflict can originate with almost any one of them - with food shortages leading to international disputes over food, land, and water; in quarrels over dwindling fish, forest, energy, or mineral resources; in the unleashing of uncontrolled technologies such as cyber raids on national IT networks, banks, and even nuclear command- and-control centres; the release of novel man-made plague organisms; the almost universal brain damage and loss of IQ\_ now being caused by the chemical flood; the tension and anxiety driven by worsening climate conditions; and in the manic tide of false information propagated by fools and malignant actors via the inter¬net. The existential threat to humanity thus spirals out of the coming together of several of these mega-risks, culminating in nuclear conflict.

An instance of how mega-risks may compound into nuclear war is the long-standing animosity between India and Pakistan, chiefly over Kashmir, terrorism, and the waters of the Indus River which feed both countries at a time of growing climate stress. Even a relatively limited nuclear conflict between the two - 100-150 warheads of Hiroshima scale - is projected to kill 100 million people directly and 1-2 billion people worldwide as the resulting ‘nuclear winter’ would cause harvests to fail and food supplies to collapse all around the planet.9 Such a disaster would almost certainly trigger further wars, some of them nuclear, as governments fail and atomic weaponry falls into the hands of political radicals, warlords, criminals, or religious extremists.

A second example is acute water scarcity leading to a food crisis in northern China, spilling the local population in all directions, including Siberian Russia: strategic think tanks fear such a development could precipitate a nuclear response. Another case is the Middle East, already the most water-starved and volatile region on Earth, where the acquisition of nuclear weapons by Iran could spark a regional arms race involving Israel and, potentially, Saudi Arabia.10 In all these cases, the nine catastrophic threats pave the road that leads to nuclear holocaust - and all must now be regarded as primers in the explosive chain leading to civilisational collapse and human extinction.

**Only the right to bargain enables workers to challenge high-emitting industries.**

Elizabeth **Kennedy 22** – Associate Professor of Law and Social Responsibility @ Loyola University Maryland; Arizona Law Review, “Equitable, Sustainable, and Just: a Transition Framework,” vol. 64

Hurricane floodwaters shattered the sliding glass door to Darlene Lee’s basement apartment, pinning her against a wall and trapping her underwater. 2 Collapsing at the end of his shift, spent picking hops inside humid tunnels of vines, Gueta Vargas became the latest casualty of a Yakima Valley heatwave.3 Kyanna Parsons-Perez was turning out scented candles on the graveyard shift when a tornado reduced the Tennessee factory to rubble, killing nine of her co-workers and trapping her below the torn-off roof as the sirens wailed.4 The risks of **climate change** are **no longer theoretical**; its causes are no longer uncertain.5 **Hurricanes**, **heatwaves**, and tornados—as well as **wildfires**, landslides, and drought—are impacting us all, though not all of us equally.6 As the effects of climate change **accelerate**, so too do demands for a **transition away** from burning fossil fuels in an extractive, **carbonbased economy** toward one that is **ecologically sustainable**.7 Yet efforts to advance that transition may exacerbate inequitable distributions of social and economic benefits and burdens among frontline energy workers8 and fenceline communities.9 Those most responsible for the negative consequences of climate change—oil and coal companies and their investors, wealthier consumers in the Global North— should arguably shoulder most of its risks.10 But in what’s been described as a “double environmental injustice,” in which risk and responsibility are inverted, those least responsible for the harmful effects of climate change live with its most significant impacts on their health, livelihood, and security.11

Producing energy by carbon-neutral means will not, alone, redress this systemic inequality, nor will clean energy production automatically result in a more racially equitable distribution of occupational opportunities and climate hazards. Structural racism has shaped and supported the fossil fuel economy, a history largely ignored in discussions of renewable energy development and sustainability.12 For example, those close to coal-fired power plants are more likely to be Black, Indigenous, or other people of color, whose wages and wealth are significantly below national averages.13 Not only are they disproportionately exposed to high levels of mercury, lead, and carbon dioxide, a lack of infrastructure and other investments have left their communities unprepared to endure the worst impacts of climate change.14 At the same time, shuttering fossil-fuel-powered facilities, absent economic diversification, will deal a significant financial blow to communities dependent on them for property and sales tax revenue.15 The United Nations refers to the racialized nature of this systemic overexposure to, and underpreparedness for, the effects of climate change and the process of decarbonization as “climate apartheid.”16

Addressing the root causes of this climate apartheid will be necessary to prevent its replication in a green energy economy. While a transition to renewable energy production is estimated to result in the loss of 6 million fossil fuel jobs, economists predict that between 24 and 37 million clean energy jobs will be created, a global net gain of 18 million jobs.17 Simple math does not accurately account for the impacts transition will have on frontline workers and fenceline communities. Human rights advocates cite growing violations of Indigenous land and water rights for wind and solar farms;18 children mining cobalt, a core component of lithium batteries needed to power electric vehicles; 19 and few women and people of color in economically sustainable, green energy jobs.20

Just Transition is a theory of change that recognizes that those least culpable for the current climate crisis are most vulnerable to its effects.21 If put into practice, **just transition** can move us away from an extractive and exploitative carbon-based economy to one that is **regenerative** and **equitable**. Equity is recourse to principles of justice when applying the law would be unjust.22 But according to whose principles of justice, by what means, and for what purposes vary considerably in the context of climate change. As some scholars have noted, there is a risk that various social movements—environmental, climate justice, racial justice, and labor rights—will advocate for separate and disconnected visions of how law and policy should advance this vision of a just transition.23 An integrative framework can resolve competing justice narratives, but it must prioritize racial equity and worker power to avoid replacing one form of climate apartheid with another. This Article considers how collective bargaining and environmental justice principles may be revisioned to meet the needs of frontline workers and fenceline communities in transitioning to an equitable, sustainable, and just economy.

The Article proceeds as follows: Part I explores the history, principles, and applications of Just Transition Theory. Part II uses a Louisiana fenceline community to analyze the weaknesses in environmental and labor laws in advancing a just transition and how race, and structural racism, are missing from just transition literature. Part III offers a law and policy framework integrating racial equity, environmental justice, and collective labor power dimensions. Part IV applies this framework to the policies and programs emerging from the State of Colorado.

I. JUST TRANSITION THEORY

A. History of a Movement

The idea of a “just transition for workers” was conceived not in response to climate change but to demands for nuclear disarmament and an end to toxic chemical production.24 Concurrent with movements for civil rights and gender equality, the anti-nuclear demands of peace activists and environmentalists would yield safer, cleaner air and water, but could be viewed as threatening to workers’ livelihoods in the atomic industry. 25 One visionary union leader saw an opportunity where most environmentalists and labor leaders saw conflict. Tony Mazzocchi, who had found work in a Long Island cosmetics factory following his decorated discharge from World War II, rose swiftly through the ranks of his Oil, Chemical, and Atomic Workers (“OCAW”) union.26 Mazzocchi pushed for legal protections for his members, whose jobs producing atomic weapons, plastics, and toxic chemicals exposed them to serious health hazards in workplaces with few enforceable safety standards, and he was instrumental in passing the 1970 Occupational Safety and Health Act.27

Making the shopfloor safer was crucial, but fully protecting workers, their communities, and the planet from the dangers these industries created required a total elimination of toxic products, including all the plastics his members produced.28 Calling for an end to manufacturing is a bold move for any labor leader; as the leader of a union whose workers’ livelihoods depended on that production, it was tantamount to treason. But Mazzocchi had a bold idea. To offset the burden his members would shoulder for the sake of the public, Mazzocchi—inspired by the G.I. Bill, of which he was a beneficiary—proposed a program by which his workers would be paid to be retrained and transition to an alternative form of work.29 He explained that being paid to undergo such a “transition from one kind of economy— from one kind of job—to another is not welfare. Those who work with toxic materials on a daily basis . . . in order to provide the world with the energy and the materials it needs deserve a helping hand to make a new start in life.”30

Though not the only labor leader interested in the burgeoning environmental movement, Mazzocchi’s vision was a critical inflection point for collaboration.31 In 1973, Sierra Club Executive Director Mike McCloskey called for the government “to indemnify workers who are displaced in true cases of plant closures for an environmental reason.”32 In what would become a central tenet of Just Transition Theory—equitable distribution of benefits and burdens— McCloskey implored, “Workers should not be made to bear the brunt of any nation’s commitment to a decent environment for all. Society should assume this burden and aid them in every way possible.”33 This nascent labor and environmental partnership attracted little attention in legal scholarship outside of a single article in the 1974 Yale Review of Law and Social Action. 34 The article considered the viability of “environmental collective bargaining,” a potential solution to the tension created between labor’s desire for jobs and the public’s interest in abating pollution.35 However, early attempts at this compromise had limited victories at the bargaining table,36 no legislative traction, and scant discussion in legal scholarship.37

Meanwhile, the environmental conservation movement began facing criticism for failing to acknowledge and address the racially disparate ways toxic chemical pollution production impacted workers and communities.38 As this new movement for what would be called “environmental justice” coalesced, Mazzocchi began to call attention to the high rates of cancer in fenceline oil, coal, and gas communities and connect environmental concerns with those of frontline workers.39 Characterizing the EPA remediation program as a “Superfund for dirt,” Mazzocchi renewed calls for a federal benefits program for workers in those industries, calling it a “Superfund for workers.”40 Such a program would aid workers in the fossil fuel sector by replacing paycheck benefits for up to four years while also providing relocation grants, retraining, and education.41

Suspecting that negative associations with the “Superfund” program made it hard to garner public support for the concept, the idea was rebranded by two of Mazzocchi’s collaborators—Les Leopold and Brian Kohler—in a 1995 public address:

The basis for Just Transition is the simple principle of equity. We ask that any worker who loses [their] job during a sunsetting transition suffer no net loss of income. No toxic-related workers should be asked to pay a disproportional tax—in the form of losing [their] job— to achieve the goals of sunsetting. Instead, these costs should be fairly distributed across society.42

“Just transition” resonated with environmental justice organizers, who pushed Leopold and Kohler to broaden their vision to include not only frontline workers but also communities.43 However, the most immediate crisis this partnership was called on to combat was not climate change but globalization, the passage of the North American Free Trade Agreement (“NAFTA”), and the resulting migration of manufacturing jobs overseas.44 Strains of Mazzocchi’s vision can be identified in the benefits provided to workers by the Trade Adjustment Act (“TAA”), including job counseling, relocation payments, continued education, and vocational training.45 But many have observed that the TAA has done little to retrain and meaningfully place manufacturing workers into new industries.46

In the decades that followed, the **labor**, environmental, and environmental justice movements were joined by **climate justice** activists, demanding action to reduce the carbon emissions now clearly responsible for **warming the planet**. Just transition became a **global export**, embraced by the International Labor Organization (“**ILO**”) and the **European trade union community**, where it was declared an “**imperative**” in the 2015 **Paris** Climate Agreement.47 With the goal of a just transition for workers impacted by the ratification of **aggressive emission reduction targets**, the ILO adopted guidelines to help governments and **social partners** (those “teamsters and turtles”48 of globalization protest fame) manage the process of **decarbonization**.49 On the domestic stage, however, federal initiatives to compensate displaced energy workers or advance a just transition have failed to garner sufficient support, albeit with some success at the state and local levels.50 As the idea of a just transition enters its fourth decade, much more is needed from a law and policy perspective to reckon with a fossil fuel industry that, as one ESG fund manager portends, “will have to disappear if we are to prevent catastrophic climate change.”51

B. Principles, Process, and Practice

Just Transition has been described as a principle, a process, and a practice.52 A review of the academic literature reveals no unified definition or framework. Instead, Just Transition embodies a wide range of principles and proposals, from market-based investments in “green jobs” development, to demands for a more robust safety net for fossil fuel workers, to radical critiques of capitalism as the root cause of climate change.53 Just Transition has attracted scholarly attention across multiple disciplines, from labor to climate to geography to political economy, but with few mentions in formal legal scholarship.54 To develop a cohesive framework for developing and analyzing legal and policy approaches to climate change, we must first understand the overlapping and distinct ways academics and activists conceptualize Just Transition.55

Like the environmental justice movement that preceded it, climate justice is concerned with underlying issues of marginalization and inequity created and reinforced by climate change.56 Climate justice scholars and activists have called attention to the fact that marginalized and displaced communities “will suffer the most from the consequences of climate change, have the least amount of resources to mitigate the harms from climate change, and yet have contributed the least amount of carbon emissions.”57 Social science scholarship on Just Transition has expanded to include workers and communities impacted by decarbonization, household energy consumers, and other stakeholders.58 While environmental justice scholarship seeks to balance the social and ecological dimensions of a just transition, the field of climate justice is focused on the consequences of climate change for marginalized and vulnerable communities, especially as this tension plays out in the Global South.59 Identifying the disparate impacts of carbonization is essential, but climate justice has paid less attention to the effects of decarbonization on those same stakeholders.60 This is where Just Transition Theory, as reframed and envisioned by nonacademic NGOs, has helped articulate a clear set of principles to inform policy and practice.61

Comprised of 84 urban and rural frontline communities, organizations, and supporting networks rooted in the climate justice movement, the Climate Justice Alliance (“CJA”) defines just transition as a set of principles “that build economic and political power to shift from an extractive economy to a regenerative economy.”62 These principles include:

i. Buen Vivir (living well without living better at the expense of others)63

ii. Meaningful Work (develop the human potential for meaningful work)64

iii. Self Determination (participatory democracy in workplaces and communities)65

iv. Equitable Redistribution of Resources and Power (disrupt intersectional inequities and oppression and target areas where inequality is most pervasive)66

v. Regenerative Ecological Economics (advance ecological resilience through localized and sustainable production and consumption)67

vi. Culture and Tradition (create inclusionary spaces for all traditions and cultures)68

vii. Solidarity (local, regional, national, and global solidarity that knows no borders)69

viii. Builds What We Need Now (begin on a small scale to meet communities’ needs)70

The contours of a just transition will look different in different places. CJA also notes that advancing these principles will require “redressing past harms and creating new relationships of power for the future through reparations.”71 To create those new relationships and redistribute power and resources, CJA developed a framework that requires governments at every level—global, national, and local. 72

The principles established by the Just Transition Alliance, an older coalition of environmental justice organizations and labor unions, are similar to those of the CJA, with an enhanced emphasis on worker power.73 They embody rights to clean air, water, land, and food and standards for procedural justice, such as the right to challenge economic and environmental injustice. The JTA standards also mandate that fenceline communities and frontline workers be involved in law and policy development. Lastly, the standards integrate principles of distributive justice by requiring that the costs of decarbonization not be borne by the victims of economic or environmental injustice. 74

Power—who has it and how it may be redistributed—is central to a recently published Just Transition framework that identifies three dimensions it is built on: conditions, capacities, and arenas.75 Conditions are the demographic, economic, political, and geographic aspects that set the stage for social change.76 These vary according to the local context in which a particular Just Transition strategy is pursued, such as the particular demographics of a state that may limit legislative pathways or strengthen organizing.77 Capacities assess the organizations, alliances, leadership, and resources available to help “build power and push policy systems in a new direction.”78 Lastly, arenas encompass the electoral, legislative, judicial, administrative, corporate, and cultural spaces “in which power is contested, and policy and practices are set.”79 This dimension evaluates governance systems, public and private, and how policy strategies are framed and amplified. It aligns with this Article’s focus on how labor and environmental law and policy can create opportunities—or barriers—to building worker power, advancing racial equity, and achieving a just transition.

Community-led organizations have cited the widening racial disparities illuminated by the COVID-19 crisis and the Black Lives Matter movement as further evidence of the need to respond to climate change in transformative, not merely transactional, ways. 80 With a vision more expansive than even Mazzocchi’s “Superfund for Workers,” the United Nations describes a just transition as one that “maximize[s] opportunities for economic prosperity, social justice, rights, and social protection for all, leaving no one behind.”81 Such a process, explains Jacqui Patterson, Senior Director of the NAACP’s Environmental and Climate Justice Program, “involves moving away from a society functioning on extraction to one rooted in deep democracy and to one integrating regenerative processes, cooperation, and acknowledgment of interdependence.”82

C. Policy Applications

Over the past decade, cities and countries that vary considerably in size, resources, economic paradigms, and governance systems have created Just Transition policies and programs.83 The underlying social movements compelling government action range from youth-led climate strikers angry at the slow pace of decarbonization to French “yellow vests” angry that the “increasingly cash-strapped and precarious” working and middle classes were being made to pay it.84 Just Transition policies can be classified into three categories: (a) compensation policies that seek to mitigate the immediate economic impacts on workers displaced by the transition to decarbonization, such as unemployment benefits or early pension eligibility; (b) adaptive support policies, which take the form of education and retraining, green energy workforce development, and funding for communities that are economically dependent on the fossil fuel economy; and (c) comprehensive adjustment policies, which combine both approaches and add wrap-around, “holistic” social services to build sustainability, and cultural and regional vitality.85 While this Article considers in greater depth an application of Just Transition in Section IV, examples of each type of classification can be found in the global and domestic law and policy arenas.

Transitioning away from fossil fuels has been a 50-year process for the Ruhr region in Germany, the historic center of European coal mining and steel production.86 The coal and steel industry began to experience a decline well before the first alarms of climate change, as cheaper means of production took hold on a global scale.87 With few other viable options for employment and few resources for education and retraining in the area, however, unemployment rates in the Ruhr region began to increase as early as the 1970s.88 In response, the federal government invested heavily in creating an educational infrastructure that could prepare workers for alternative careers.89 Notably, this vision was not limited to training workers for green energy careers.90 Instead, the government sought to attract and retain employers across a broad range of sectors, creating economic diversity where there had once been a powerful yet solitary industry.91 The development and maintenance of Ruhr’s Just Transition plan to completely phase out coal are directed by a commission comprised of multiple stakeholders, including industry, governmental ministries, environmental organizations, and trade unions.92

Here in the United States, a comparable federal plan to counteract job losses and economic decline in a move away from coal production in Appalachia achieved more limited success.93 Funds allocated by the Obama Administration support job retraining and development projects for displaced coal miners and their communities.94 However, Congress rejected a proposal to provide income and retirement support to miners.95 The Marshall Plan for Coal Country Act, introduced by Senator Tammy Duckworth of Illinois, would have provided full tuition assistance for coal miners and their families, extended Medicare coverage to coal miners who lose their jobs, and required coal companies to pay workers’ health care and pension costs even upon bankruptcy. 96 The proposal, endorsed by the United Mine Workers Association, failed to make it out of Committee.97

As with most workplace protections and legislative experiments, more promising programs and policies are emerging at the state level. Utah developed a Coal Country Strike Team public-private partnership that engages academics and experts to help its most distressed counties as they transition away from coal.98 In addition to supporting education and training for workers, the plan focuses heavily on economic diversification, such as attracting remote workers in the tech industry, expanding the outdoor recreation and tourism sectors, and investing in affordable housing.99

Other state governments have enacted a range of proposals designed to incentivize green energy production and ease the transition for workers and communities. Some, like Washington, created tax incentives for clean energy targets and job creation.100 Those policies aim to create higher-paying, sustainable union jobs by developing renewable energy employers.101 Other legislative approaches include requiring labor peace agreements, project labor agreements, and the payment of prevailing wages as conditions for renewable energy credits and development permits.102 Such prevailing wages are necessary to ensure green wage parity with those of the extractive energy sector, where wages reflect a century of union organizing.103 Still, other states, such as Maine, have forged a policy approach modeled on the federal Green New Deal, creating a comprehensive package of tax incentives, worker training, retraining, apprenticeship programs, and ambitious carbon reduction standards in partnership with labor unions.104

II. LAW & POLICY LIMITATIONS

We are talking about a “just transition” for working people as we address the climate crisis—but here is the challenge of building a “just transition”; we’ve never seen one before. 105

History is replete with unjust transitions. From Reconstruction to the rise of the gig economy, those with the least power in society bear the brunt of change.106 Moreover, those with the power to enact, enforce, and amend environmental law and policy do not reflect the diversity of those who must live with its limitations.107 **Just transition** requires an equitable redistribution of that power, in which **law** can and must play a **critical role**. To determine how law and policy might promote justice in an era of decarbonization, we must first understand how these arenas have historically reinforced injustice.108 The town of Norco, Louisiana provides a case study for how structural and institutional racism supported the growth of the fossil fuel economy and how labor and environmental law has failed to prevent and redress harm.109 Only by attending to this legal history and the case of Norco do we stand a chance of not repeating it.

A. Fenceline and Frontline Barriers to Justice

The opening moments of Slawomir Grunberg’s documentary Fenceline: A Company Town introduces us to two women, each driving alone through Norco, raindrops batting their car windows as a towering open flame—a “flare” in industry terms—burns against the backdrop of their separate neighborhoods.110 Both women have spent their lives in Norco, one the daughter and spouse of frontline refinery workers living in a white company town, the other a retired schoolteacher living on the refinery’s fenceline in a Black neighborhood named for the sugar plantation where her ancestors had once been enslaved.111 Staring out at a horizon obscured by smoke and flame, the Black woman furrows her brow and tells us, “When that black smoke come and meet with the dark cloud, you don’t know what’s a cloud and what’s smoke. How can you not help but be in fear?”112 Signifying a sharply different lived experience, her white neighbor smiles and says, “Actually, I kind of like to look out at the plant, and if there’s a flare going, it brightens everything. I don’t think anything bad at all. The flares are really not bad, and people don’t seem to understand that.”113

Fenceline continually weaves these conflicting and racialized fenceline and frontline perspectives on the fossil fuel industry. However, only one—that of the Shell workers—reflects the dominant narrative repeated in Just Transition theory, policy, and practice. Consider the three examples of Just Transition programs presented in Section II: the Ruhr region of Germany, Appalachia, and Utah. All three programs prioritized the needs of frontline coal mining and steel production workers over Black, Latinx, and Indigenous people of color, as well as white women. Understanding the history of slavery, oppression, and extraction and the legacies of structural racism experienced by the Diamond community is critical to developing and advancing a just transition.

Norco is a 50-mile stretch of land along Louisiana’s “cancer alley,” referring to the extraordinary rates of that disease (among others) attributed to the toxic emissions released by a massive concentration of petrochemical facilities.114 Named for an oil refinery in the twentieth century and deemed a “sacrifice zone” in the twenty-first, a study of Norco’s geography reveals a much longer history as a contested space: Indigenous expropriation by Spanish colonists, a sugar plantation economy powered by enslaved labor, uprisings and rebellions by those enslaved people, the creation by newly freed people of a Reconstruction community, and the sharecropping economy for which they labored.115 The discovery of oil in the early 1900s birthed a booming petrochemical industry, which would radically reshape the region.116 While the New Orleans Refining Company (Norco’s namesake), owned by the Royal Dutch Shell Oil Company (“Shell”), created significant economic opportunity, Black residents were barred from working in or otherwise benefiting from oil production.117 Meanwhile, the white refinery workers and their families were “quickly tethered to the oil industry,” living in a company town that provided housing and community amenities like a pool, movie theater, and company picnics.118 Professor Pelot-Hobbs describes these as “twinned practices of exclusion and entanglement,” which made the white workers increasingly dependent upon an employer from which their Black neighbors became increasingly estranged.119

Over the following decades, Shell repeatedly expanded the footprint of its Norco refinery, transforming distanced Black neighborhoods like Diamond into fenceline communities.120 Concerns raised by residents of Diamond of worsening air pollution and increasing rates of asthma, allergies, and skin disorders were consistently ignored by federal regulators, denied by Shell, and disparaged by white residents of Norco.121 The white Shell workers were reluctant to enforce health and safety standards, such as those mandated by OSHA, fearing the effects on their job security and company town.122 The Black residents were workplace safety stakeholders, but as nonworkers, they were stakeholders without standing.123 The result was a white community economically dependent upon the continued operation of a toxic and dangerous workplace and a Black fenceline community with few legal or political means of protecting itself. 124

A fiery blast from the Shell pipeline killed two fenceline residents in 1973—an older woman whose home was burned to the ground and a teenage boy mowing the lawn nearby—prompting the relocation of the fenceline a short distance away.125 Even in the new location, residents were subject to “significant toxic pollution and recurring industrial accidents that threatened the lives and health of residents.”126 It is important to note that while Black residents of Diamond disproportionately shouldered the burdens of oil production, the white Norco workers and community were not immune to the harmful effects of Shell’s operations. A series of explosions in the 1970s and 1980s fatally or severely injured dozens of white workers, the most significant killing seven employees in an overnight blast that “shattered windows, blew doors off their hinges, and detached roofs as far as five miles away.”127 Our dependence on fossil fuel extraction has shaped our collective tolerance for the hazardous conditions under which frontline workers—coal miners, oil riggers, or plant operators—labor.128

This last blast proved to be a tipping point for the Diamond community.129 A core group of mostly Black women in the Diamond community, led by retired schoolteacher Margie Richard, began voicing public concerns about the impacts of Norco’s operations, industrial accidents, chemical leaks, and air quality.130 Convinced that Shell would neither self-regulate nor be meaningfully regulated by the state, Margie and her neighbors filed a lawsuit to demand that Shell pay for their relocation out of Norco.131 Organizing as Concerned Citizens of Norco (“CCN”), the residents partnered with environmental justice and legal advocacy organizations, including the Louisiana Bucket Brigade, the Deep South Center for Environmental Justice, and Advocates for Environmental Human Rights (“AEHR”), and expanded their capacities for organizing, identifying environmental racism, and understanding the regulatory landscape and its limitations.132

The story of Norco is not unique.133 Frontline workers and fenceline communities frequently encounter systemic barriers to environmental justice. The agencies that enforce environmental standards are chronically underfunded, and the litigation process is costly and lengthy.134 Without assistance from either the Louisiana Department of Environmental Quality (“DEQ”) or the federal EPA, despite collected evidence demonstrating that Shell’s emissions surpassed federal guidelines, CCN lost its relocation lawsuit in 1997.135 Drawing a stark comparison, the human rights lawyers working with Margie noted that, while the United States had “enacted volumes of environmental laws more than thirty years ago that established an extensive bureaucratic system,” the polluted environmental conditions in Louisiana were no different from those in other countries in which it worked, like South Africa, which had no national environmental legislation.136

With litigation and regulatory enforcement paths foreclosed, CCN leveraged their collective power for community organizing, staging press conferences, circulating petitions, and holding marches demanding a “fair and just relocation.”137 Shell offered to purchase half of the Diamond community at “market value,” an amount made artificially low by the presence of their toxic-chemicalemitting neighbor.138 CCN organized the community to resist the offer and then leveraged an opportunity to confront Shell executives at the 1999 United Nations Commission on Human Rights.139 In the Hague and before the world press, Margie hand-delivered a bag of Norco air, hoping to shame Shell into negotiating fairly.140 Shell finally agreed to the Diamond community’s demands in 2002, a victory that would inspire other fenceline communities worldwide, from Sao Paolo to the Niger Delta to Port Arthur, Texas.141

If fenceline residents and frontline workers encounter barriers in enforcing environmental laws in a fossil fuel economy, what does that portend for the role of law in a just transition? **Environmental law** has **struggled to adapt** as the focus on environmental issues has shifted from specific instances of industrial pollution to more **generalized problems** related to global climate change.142 Climate justice advocates have pushed for the **evolution** of traditional environmental law from a “**command and control**”143 regulation system to a more **democratic process** of community participation, policy, and decision-making.144 As Professor Ruhl has observed, the “path of environmental law has come to a cliff called climate change, and there is no turning around.”145 Scholars interested in understanding how the law can best respond to climate change have noted that the fields of environmental law and labor law are ill-equipped to aid in a just transition.146 At best, existing legal vehicles for **regulating** the environment and the workplace are **insufficient**; at worst, they reinforce barriers over which frontline workers and fenceline communities are incapable of hurdling.

Just Transition efforts focusing solely on the predominately white fossil fuel workforce result in a missed opportunity to make the renewable energy economy more equitable. Achieving a just transition will require **revising labor** and environmental **law** and **policy** through a process that directly engages those fenceline workers and frontline communities most affected by climate change and economic restructuring.147 Professor Doorey, in his pioneering scholarship on labor law for a just transition, considered the viability of a new field of “Just Transition Law” that would combine insights from environmental law,148 environmental justice,149 climate justice,150 and labor law.151 Just Transition Law would include “transitional” legal strategies to encourage and guide the **decarbonization process**, and laws that seek to ensure that transition is a “just” one.152 Doorey argues that governments should seek through law and policy to distribute the harms and benefits of climate change equitably.153 Doorey’s vision of a separate field of Just Transition Law would include environmental laws designed to regulate carbon emissions and industrial practices and policies governing energy transition that provide protections for adversely impacted workers and communities.154 Integrating law and justice within existing laws or a new legal field will be necessary to close the legal and policy gaps into which the Diamond community has fallen.

B. Structural Racism Perpetuates Inequity

As Norco exemplifies, frontline workers and communities of color are not disproportionately burdened by fossil fuel pollution and climate change by accident.155 Tracing the history, effectiveness, and evolution of legal protections for fenceline communities and frontline workers in Norco reveals the pernicious ways that the fossil fuel economy used race and racism.156 However, while the geography of Norco lays bare a history of colonization, Indigenous land expropriation, chattel slavery, residential segregation, and employment discrimination, the Just Transition literature is surprisingly silent on the roles that systemic racism, intersectional oppression, and legal systems have played in perpetuating barriers to climate justice.157 Little attention is paid to how Just Transition laws, policies, and practices might serve to dismantle the structural racism that both helped create and was perpetuated by the fossil fuel industry. Race and gender are invoked obliquely, referring to “marginalized” or “vulnerable” communities. Indeed, as Edouard Morena observed, just transition is often a “rigid, ahistorical concept for policymakers.”158 Yet as Norco clarifies, supra Section II, the legal system—from legalized slavery to workplace discrimination to racialized patterns of environmental protection—has played a pivotal role in allocating benefits and burdens in a fossil fuel economy.

Past policies and practices that undergird structural racism perpetuate racial inequity and, unless intentionally dismantled, may replicate that inequity in the energy transition. The Federal Housing Administration (“FHA”), established in 1934, played a crucial role in developing what Richard Rothstein calls a “state sponsored system of segregation.”159 By refusing to insure mortgages on homes in neighborhoods with high concentrations of African Americans, immigrants, and other people of color through a rating system that reflected and reinforced racial residential housing laws, the FHA caused a massive devaluation of property in neighborhoods of color and fortified barriers to homeownership for African Americans, a significant cause of the contemporary racial wealth gap.160

While it is not surprising to learn that redlining perpetuates racial inequities that extend far beyond homeownership, affecting education, health, transportation, employment, policing, and incarceration, its direct connection to climate change precarity is just as pervasive. Last year, after analyzing the “flood potential” of properties in its database, the real estate listing company Redfin shared its discovery that homes in formerly redlined neighborhoods were at a disproportionately high risk of future flooding.161 Given the enduring nature of structural racism, people of color are still more likely to live in those neighborhoods, which, in a double blow, are less equipped to prepare for the increasing number of storms that climate change will produce.162

Sacramento’s Gardenland neighborhood is one such community. Classified in the 1930s as a “declining” neighborhood, today its residents are primarily people of color whose homes are more likely to flood on a warming planet increasingly prone to heavy rain.163 In sharing that the risk of future flooding correlated with past redlining, Redfin acknowledged what fenceline communities have argued for decades: de facto climate inequity is a product of centuries of de jure discrimination.164 Racial residential restrictions and private racial covenants historically forced Black residents into the least valuable areas, often those proximate to tidal flooding.165 Decades of devaluation, divestment, and degradation have prevented these communities from making the kinds of infrastructure investments needed to guard against the effects of damaging storms and rising seas.166 Law and policy devalued these communities, pushing residents figuratively underwater, where they live on the brink of becoming submerged.167

Since the effects of fossil fuel extraction and climate change are not race neutral, the policies for transitioning to noncarbon energy cannot be either. Yet our existing legal frameworks do not intentionally and aggressively seek to reverse persistent racial inequity, and our civil rights laws are cleaved into separate legal arenas.168 Professor Kaiman noted this inadequacy:

Not only is it that current and ongoing environmental injustices face a tremendous uphill battle in the courts using either environmental laws, civil rights law, or administrative laws, but . . . since the dawn of the environmental justice movement, it has been obvious that there are only inadequate legal solutions to providing justice for affected communities.169

While increased flooding, along with increased drought, wildfires, and “mutant monster storms,” are problems that will impact all on our shared planet, the data make clear that while we may all be in the same climate-change-induced storm, we are most certainly not in the same boat.170

C. Systemic Weakening of Labor Law

It would be politically expedient for Shell to frame the story of Norco as a town that is simply “racially divided,” pitting Black fenceline residents against their white neighbors in a binary equation of haves and have-nots. However, the injustices that the Black residents of Norco experienced should not be measured solely against the experience of their white Norco neighbors. To do so would ignore the stark imbalance of power Shell workers experience working in one of America’s most dangerous and deadly industries.171 While white residents may have publicly dismissed the health and safety concerns of their Diamond neighbors, supra Section II, they undoubtedly mourned the losses of the lives, limbs, and livelihoods their community endured with each industrial explosion.172 The ambient concentrations of carcinogens captured by Diamond’s EPA monitors, supra Section II, did not respect the boundaries of residential segregation; the white residents of Norco may have lived further from the fenceline, but they were still residents of Cancer Alley.173

We know from the issues they raised as a union that health and safety were a primary concern—and often out of reach—for the Shell refinery workers. The United Steelworkers union (“USW”) represents roughly 30,000 workers in the oil and petrochemical industry at 230 facilities, including 65 refineries and dozens of terminals, pipelines, and petrochemical plants.174 In 2015, Norco members of the USW voted to strike—the first nationwide oil refinery strike since 1980—after Shell refused to concede to their demands for more robust health and safety protections.175 Margie Richard was not the only Norco resident to travel to the Netherlands with health and safety demands for Shell; members of the Norco USW traveled to Rijswijk in 2017, joining other trade unionists from among the ranks of the 90,000 Shell Oil workers worldwide.176 There, they shared concerns about toxic exposure, company intimidation, and Shell’s increasing reliance on independent contractors.177

Strong frontline worker power is necessary for any equitable and sustainable economic system despite the intensely racialized Norco workforce. In addition to improving wages, benefits, health outcomes, and safe working conditions, collective worker power can help dismantle racist and sexist policies and redistribute inequitable concentrations of wealth. However, assessing the current capacity of unions to influence an energy transition in Louisiana reveals that “organized labor is a huge gap.”178 Louisiana passed a so-called right-to-work law in 1976, dealing a sharp blow to the union’s ability to organize workers across all industries, resulting in a stark decline in statewide union membership.179 These actions and outcomes mirror national trends.180 Diminishing unionization rates have resulted in an overall decrease in the collective power of frontline workers in the fossil fuel economy and are expected to trend even lower in the green energy industry.181 Starting wages in the wind and solar sectors are significantly lower than those in the fossil fuel industry where wages reflect a century of labor struggle for which workers lost their lives in mines and on picket lines.182

Like their Diamond community neighbors a decade before, the Norco refinery workers secured their health and safety demands not through OSHA regulation or litigation but with collective union power—precisely as the National Labor Relations Act (“NLRA”) is designed to function.183 Yet while the NLRA is a tool that workers can wield to improve wages and safety, it can be a blunt instrument when applied to climate change and transition issues. Though labor law is designed to provide workers with a voice on issues vital to them and their co-workers, it narrowly defines the issues that may be negotiated.184 Excluded from “mandatory” subjects of bargaining would include the company’s commitment to decarbonization, the impact of its operations on climate change, and the health and safety concerns of fenceline residents.185 In this way, labor law narrows what it means to be a worker and strips that worker of their larger community context. The NLRA ostensibly gives workers the right to “engage in other concerted activities for collective bargaining or other mutual aid or protection.”186 While reducing or eliminating the risks to health and safety that come from a warming planet should arguably fall within this broad category, workers have found little success in advocating for employer-driven changes to advance a just transition.187

What does that forecast for labor law’s role in transitioning from fossil fuel jobs such as oil refining and careers in a renewable energy economy? Is labor law a barrier or an opportunity for creating a more equitable clean energy workforce? The intersections of climate change and labor law remain largely unexamined.188 Alternative vehicles for building union power, such as community benefits agreements, European-style “works councils,” and other forms of “co-regulation,” are discussed in Part III.

III. EQUITY, JUSTICE, AND POWER: AN INTEGRATIVE FRAMEWORK

Scholars of environmental justice, climate justice, and energy justice— each keyed to separate social movements—invoke distributional, structural, and procedural justice to frame their analysis.189 Yet as Professor Doorey cautions, each justice movement “tells a story about distributive and participatory injustice related to and arising from environmental harm and climate change as perceived through a critical lens.”190 While these movements share a desire to “push back on prevailing social and economic power structures,” they do not always share the same goals or vision of justice; indeed, sometimes those visions conflict.191 For example, in California, while labor unions lobbied to develop utility-scale solar energy systems (to maximize job creation), they mobilized against the demands of some environmental justice advocates for rooftop solar programs (to make energy more affordable to low-income communities).192 Still, other environmental justice advocates decried racial disparities created by many rooftop solar programs.193 Should the “just” approach to solar energy transition focus on those workers directly impacted by the phasing out of fossil fuel jobs that precede it?194 Should it focus on those individuals and communities currently furthest from energy justice, neither employed by the energy industry nor able to afford it? Or should it focus much more broadly on all individuals and communities?195 As Professor Eisenberg observed, this “broad concept of just transition . . . calls for a grand restructuring of social inequality.”196

Though a grand restructuring is necessary for a just transition, the purpose of this Article is to more narrowly guide the development and enforcement of law and policy that is practical, targeted, and inclusive. This Part offers an integrative framework for addressing equity, power, and justice. Vague references to “marginalized” communities in the literature obscure the particular and pressing issues facing workers and communities of color. This framework integrates the environmental justice movement’s structural, procedural, and distributional equity concerns with a racial justice lens and emphasis on building collective power.197 When evaluating any law, policy, or program intended to address fossil fuel transition, this integrative framework asks five questions:

1. Does it attempt to rebalance power, voice, and agency to frontline workers and fenceline communities disproportionately burdened by climate change? (structural)

2. Are frontline workers and fenceline communities directly and meaningfully involved in developing, implementing, and enforcing the law, policy, or program? (procedural)

3. Does it use targeted universalism to prioritize workers and communities furthest from climate justice in education, training, hiring, and other economic opportunities? (distributional)

4. Does it require that demographic data be collected, disaggregated, analyzed to identify disparities, and made public? (racial equity)

5. Does it strengthen the ability of frontline workers and fenceline communities to build collective power through collective bargaining or co-governance? (collective power)

A. Equity Dimensions

Arising in direct response to the resistance by many environmental and conservation groups to acknowledge the role that intersectional oppression played in environmental injustice, the environmental justice (“EJ”) movement called attention to the disproportionate ecological burdens experienced by communities of color, as well as the barriers they faced to any meaningful and democratic participation in decision-making.198 Environmental justice principles include:

The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies; with a focus on the equitable distribution of resources, benefits, and burdens in a manner that prioritizes communities that experience the most significant inequities, disproportionate impacts, and has the greatest unmet needs.199

These principles require policymakers and stakeholders to analyze transition law and policy along three equity dimensions: structural, procedural, and distributional. Structural equity refers to whether rules, policies, and programs are developed and enforced with a recognition of how historical, cultural, and institutional structures have created inequitable outcomes along intersectional lines of difference. 200 Procedural equity concerns whether all people have an equal opportunity to meaningfully and equitably participate in developing, implementing, and enforcing laws, policies, and programs. 201 Distributional equity describes the allocation of burdens and benefits among communities.202 Though, as in Norco, frontline workers and fenceline communities encounter frequent legal barriers in their pursuit of justice, the system of EJ is described as “both a social justice and resistance movement and a strategy of legal engagement.”203 This Section addresses each equity dimension and identifies how it may be advanced through specific legal and policy approaches to Just Transition.204

1. Structural Equity

Structural equity recognizes that “racially neutral policies are rarely race neutral” and can perpetuate inequitable outcomes.205 However, strategies to advance racial equity must be systemic, race-explicit, and outcome-oriented to succeed.206 By contrast, “universalist” policies that are silent about the inequities created by past law and policy embrace a false hope of what Professor Kimberlé Crenshaw has called “trickle-down social justice.” 207 By contrast, a structural equity analysis makes intersectional equity a starting point for the discussion. Creating policy with a structural equity lens requires that we name race and racism when analyzing the disparate impacts of the energy transition on frontline workers and fenceline communities.208 Applying a racial equity lens also means naming race and racism explicitly when developing and analyzing climate transition programs, policies, and practices. As noted above, the Just Transition literature largely fails to acknowledge the history of structural racism that excluded workers of color, the labor history of the fossil fuel industry, and the ongoing resistance of fenceline communities to their hazardous living conditions.

Structural equity requires an explicit acknowledgment of those histories and a stated commitment to an equitable distribution of burdens and benefits in a new economy. We cannot plan for a regenerative economy without understanding how the fossil fuel economy used racism and sexism to marginalize workers and communities, and then developing targeted strategies to prevent their replication. Through an approach called “targeted universalism,” universal goals are established, and data is collected, disaggregated, and analyzed to determine how various groups relate to that goal. Existing structures are analyzed to decide whether they support or impede each group from achieving that goal. Differentiated strategies are then targeted to each group.209

Recognizing that the fossil fuel economy has an enduring history of racial and gender discrimination, a universal goal for a just transition might be that “everyone has the opportunity for meaningful paid participation in the green energy sector.” In pursuit of that goal, demographic data would be collected and disaggregated, intersectional disparities identified, and specific solutions to eliminate those disparities crafted.210 Such solutions may include affirmative action programs, K–12 curricular revision and educational supports, community-engaged mentorship, and training programs. A prevailing wage framework should be established for jobs in the green energy industry to ensure that occupational pathways are paid at rates commensurate with the work. In the case of Norco, measuring where each group falls along the continuum of a goal of workplace safety, for example, would make visible worker precarity as measured against that goal of universal security rather than only the security of, say, members of the Diamond community. Instead of artificially low benchmarks that reflect racism and sexism, this approach sets a common standard and directs resources to eliminate disparities across intersectional lines of difference.211

2. Procedural Equity

If the process of transition is not just, the outcome will never be. 212

Procedural equity describes a political process or system of workplace governance in which all stakeholders are equally and fairly represented, recognized, included, and welcome to participate in decision-making and dispute resolution.213 Central to the tenets of a just transition, procedural equity requires that those fenceline communities and frontline workers most affected by pollution, ecological damage, and economic restructuring be included in developing the laws, policies, and programs that will shape a new economy. Governments play a direct role in ensuring procedural equity.214 As Professor Doorey implores, “a just transition envisions an active state using the law to tame market forces, which if left unchecked, could produce environmental and economic catastrophe,” a perspective described as “environmental Keynesianism.”215 However, governmental policymakers must “follow the leadership, knowledge, and expertise of communities disproportionately impacted.”216

Regarding racial equity, procedural equity recognizes that “people who experience racism and sexism know best how to move toward an equitable and resilient workplace and economy.”217 This includes ensuring that workers and residents of color have “the capacity and opportunity to fully engage, at the outset, in policy design and implementation,” as well as mechanisms to ensure public “oversight, transparency, and accountability.”218 This can take the form of systems that encourage and support the ability of frontline workers and fenceline communities to challenge governmental and corporate action (and inaction). Yet this cannot simply be an invitation to participate; much more is needed to ensure such participation is equal, informed, and meaningful.

One compelling example of procedural equity is the ILO’s system of “tripartite social dialogue in the development and implementation of international labour standards,” or as referred to in shorthand, “social dialogue.”219 Believing that sustainable development is only possible if those in “the world of work”—employees and employers—are active “agents of change, able to develop new pathways to sustainability,” the ILO uses social dialogue to promote its sustainability and Just Transition plan.220 Social dialogue is regarded as critical to a just transition. 221 However, the ILO also recognizes that certain conditions must exist for such dialogue to be meaningful.222 They include strong unions and respect for the fundamental rights of freedom of association and collective bargaining.223

Lastly, restorative justice is another dimension of procedural equity, which predates the idea of a just transition but is squarely within its ambits. 224 While typically associated with criminal law, principles of restorative justice seek to repair the harm done to an individual or, as in the case of climate change, entire communities.225 While environmental law is primarily oriented to remediating environmental damages to air, soil, and water, restorative environmental justice aims to “rectify or ameliorate situations that disenfranchised or harmed particular communities in the past.”226

3. Distributional Equity

Distributional equity is central to Just Transition theory, has roots in Rawls, and intersects with sustainable development and environmental justice.227 Distributional equity requires that transitional benefits be prioritized for those fenceline communities that have historically shouldered a disproportionate burden of fossil fuel extraction and climate change.228 To redistribute these benefits and burdens, Front and Centered, a broad coalition of labor and environmental advocates in the Pacific Northwest, calls for “targeted strategies to create net environmental and economic outcomes for people of color and Indigenous people” as a means of ensuring distributional equity.229

One such targeted approach to economic policymaking is “Black Women Best.”230 Coined by Janelle Jones in response to the COVID-19 pandemic, Black Women Best is an economic principle that holds that “if black women—who since our nation’s founding have been among the most excluded and exploited by the rules that structure our society—can one day thrive in the economy, then it must finally be working for everyone.”231 Taken in the context of decarbonization, approaching policymaking through the lens of making a sustainable energy economy accessible to and supportive of Black women’s full participation would “safeguard everyone else, too.”232 Centering race and racial equity—whether through a targeted universalism approach or a race-explicit approach like Black Women Best—is necessary to craft effective “solutions to centuries of systemic exclusion, extraction, and exploitation that have continually undermined economic potential in the U.S.”233 By directing resources to those with the greatest need, a central principle of distributional equity, this kind of targeted strategy can help to create a sustainable and just economy.234

B. Collective Power Dimensions

Strengthening the power of **frontline workers** improves outcomes across all equity dimensions and will be critical to ensuring a **just transition**. At a **structural level**, worker power can help to remediate past harms, disrupt ongoing systems of intersectional oppression, enforce workplace **standards**, and **set the agenda** for identifying and measuring universal **goals** for the **clean energy workforce**.235 From a procedural standpoint, increasing worker power can yield better representation and participation in decision-making.236 It can also enable workers to more effectively— and securely—**challenge** the actions of government and corporations.237 And at a distributive level, **collective bargaining** is crucial for an equitable distribution of wealth in the **renewable energy economy** and to act as a **check** on increasing concentrations of corporate power.238

As Doorey contends, the labor relationships “demands a theory of justice,” as human labor should not be treated as “just another mundane market transaction.”239 While **labor law** may be a useful starting point for building collective power, as discussed supra Section II-C, it has failed to produce a fossil fuel workplace that is racially equitable, safe, and **organized**. Without significant legal and **policy changes**, we will find it even more challenging to do so in a **low-carbon future**. Pursuing a just transition will require labor law and policy to reign in the widening inequality of bargaining power between frontline workers and energy sector employers.240 There are clear law and policy pathways that can help to build workers’ capacity to (1) organize, (2) negotiate, and (3) collaborate with other stakeholders to advance a just transition.

1. Power to Organize

Just look at the numbers to understand what frontline workers stand to lose in a transition from fossil fuel extraction to renewable energy. While **10–12%** of the fossil fuel workforce is unionized—indeed not tremendous, but nearly double the unionization rate in the **non-fossil-fuel** private sector241—only about **4%** of solar industry workers and **6%** of wind workers are unionized.242 As a result, average salaries for workers in fossil fuel industries are significantly higher than in solar or wind energy.243 Eliminating the barriers workers face when forming unions will be critical for closing the racial wealth gap, keeping renewable energy sector workers safe, and advancing economic justice.244 **Strengthening workers’ collective bargaining rights** is imperative for a **just transition**. Professors **Block** and **Sachs** propose a panoply of alternative forms of worker organizing, ranging from workplace monitors to disciplinary representation by request to “works councils,” members-only unions (with a minimum of 25% of workers voting to join), traditional unions (when at least a simple majority of workers vote to join), and **sectoral bargaining** (when at least **10%** or 5,000 members in an industry vote to **join the** union).245

**Sectoral bargaining**—organizing and bargaining across an **entire industry**, such as **wind**, **solar**, and **electric vehicles**—has perhaps the most **significant potential** to counteract the inequitable wage structure in the **renewable energy industry**. **Expanding sectoral bargaining**, as is the custom in **many other countries**, could yield much **greater union density**, reduce income inequality, and address racial and gender wage disparities more effectively.246 Such a strategy would establish **green industrywide “floors**” for wages and other benefits while permitting enterprise-level negotiations **above** that floor.247 In addition to **frontline energy workers**, this strategy may also benefit those aspiring “high road” **energy employers**, as the floor could eliminate the “**race to the bottom**” on wages and benefits to remain **competitive** in an **emerging industry**.248 On the other hand, such a floor could help guard against an oil company pivoting to green energy, laying off their long-term oil riggers, and immediately rehiring them into photovoltaic installer positions. Without strong worker power and established standards, the employer would reap significant cost savings by paying their “new” workforce a fraction of what they previously earned.249

Though its application to the private sector employment relationship may have dwindled, labor law can still be helpful for economic justice and harnessing worker power. Amendments to fortify workers’ rights under the NLRA and **expand sectoral bargaining** and alternative governance structures will be **necessary** to ensure an equitable distribution of power, resources, and opportunity in an era of **decarbonization**.