



Deindustrialization, social disintegration, and health: a neoclassical sociological approach

Gábor Scheiring¹  · Lawrence King²

Accepted: 6 February 2022 / Published online: 14 March 2022
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Abstract

Deindustrialization is a major burden on workers' health in many countries, calling for theoretically informed sociological analysis. Here, we present a novel neo-classical sociological synthesis of the lived experience of deindustrialization. We conceptualize industry as a social institution whose disintegration has widespread implications for the social fabric. Combining Durkheimian and Marxian categories, we show that deindustrialization generates ruptures in economic production, which entail job and income loss, increased exploitation, social inequality, and the disruption of services. These ruptures spill over to the field of social reproduction, generating material deprivation, job strain, fatalism, increased domestic workload, anomie, community disintegration, and alienation. These ruptures in social reproduction are sources of psychosocial stress, through which deindustrialization gets embodied as ill health and dysfunctional health behavior. We substantiate this framework through the extensive qualitative thematic analysis of 82 life history interviews in Hungary's rust belt.

Keywords Deindustrialization · Deaths of despair · Durkheim · Health · Marx · Neoclassical sociology

Classical sociology emerged in response to the experience of capitalist transformations in the 19th century that brought rising incomes but also intense suffering in industrial centers. Measured by health, the biggest social transformation of the 20th century, the transition from state socialism to capitalism, was also a source of improved life chances for a few and widespread suffering for many (Ghodsee &

✉ Gábor Scheiring
gabor@gaborscheiring.com

¹ Department of Social and Political Sciences, Bocconi University, Milan, Italy

² Department of Economics, University of Massachusetts Amherst, Amherst, United States

Orenstein, 2021). Total excess mortality could have been around 7.3 million in 1990–1999 in Eastern Europe (Stuckler, 2009, p. 7). Between 1988 and 1994, male life expectancy in Russia fell from 64.6 to 57.6 years. Countries outside the former Soviet Union fared better, but male life expectancy in Hungary also dropped from 66.2 to 64.9 between 1998 and 1994. Hungarian death rates reached levels last seen during the Great Depression in the 1930 s (Kopp et al., 2007, p. 326).

From the 1980 s to the 1990 s, the mortality difference between male blue-collar workers with less than secondary education and those with a college degree grew by 17% in Hungary (Doniec et al., 2018). The leading direct causes were acute cardiovascular disease and alcohol-related health issues (McKee, 2002). Most of these deaths can be considered deaths of despair, driven by economic dislocation, concentrated in working-age people. Though they retain the deaths of despair label for suicides, alcohol- and drug-related deaths, Case & Deaton (2020, p. 40) also note that heart disease also contributed to the growing life expectancy gap between college-educated and working-class whites. In Eastern Europe, a significant part of cardiovascular diseases is also linked to the deaths of despair in two ways. First, indirectly, heavy drinking and binge drinking can cause heart disease. Second, desperation and stress are directly driven by economic dislocation also increase the risk of cardiovascular problems. Propelled by growing economic differences, health inequalities continued to grow throughout the 2000 s, even as the economy grew dynamically (Bíró et al., 2021; Scheiring et al., 2018).

In parallel to this epidemic of excess deaths, Hungary also experienced a severe industrial employment decline, representing one of the more pronounced examples of the global wave of deindustrialization. Between 1987 and 1995, during the country's most pronounced liberalization measures, industrial employment fell by 43% (Laky, 2000). In contrast, severely deindustrialized metropolitan regions in the U.S. lost around 30% of their manufacturing labor force between 1972 and 1987 (Wallace et al., 1999, p. 115). A recent quantitative assessment by Scheiring et al., (2021) found that deindustrialization could have been a major cause of the deaths of despair in the 1990 s in Russia and Hungary. Figure 1 shows that deindustrialization in the 1990 s also positively correlates with death rates in the 2000 s, especially in towns where deindustrialization exceeded 50%. Deindustrialization thus appears to be crucial both for short-term increases in mortality and long-term health inequality even when life expectancy increases and the economy improves.

This unprecedented mortality crisis and destruction of industrial capacity have widespread implications for the social fabric but have been neglected by sociologists. Based on research on Western Europe (Koltai et al., 2020) and the U.S. (Monnat & Brown, 2017), excess mortality likely contributed to the loss of legitimacy of liberal democracy and the rise of nationalist-populist political forces that have capitalized on “liberalism’s failure to deliver” (cf. Krastev, 2016). These issues are quintessentially sociological. Sociologists and social anthropologists played a leading role in exploring the lived experience of postsocialist transformations in terms of elite formation (Eyal et al., 1998), income inequality (Bandelj & Mahutga, 2010), and economic decline (Burawoy, 1997). However, they have been marginal in the debate on the postsocialist mortality crisis. Furthermore, except for Scheiring et al., (2021), the role of deindustrialization has been neglected by researchers. This neglect is perhaps

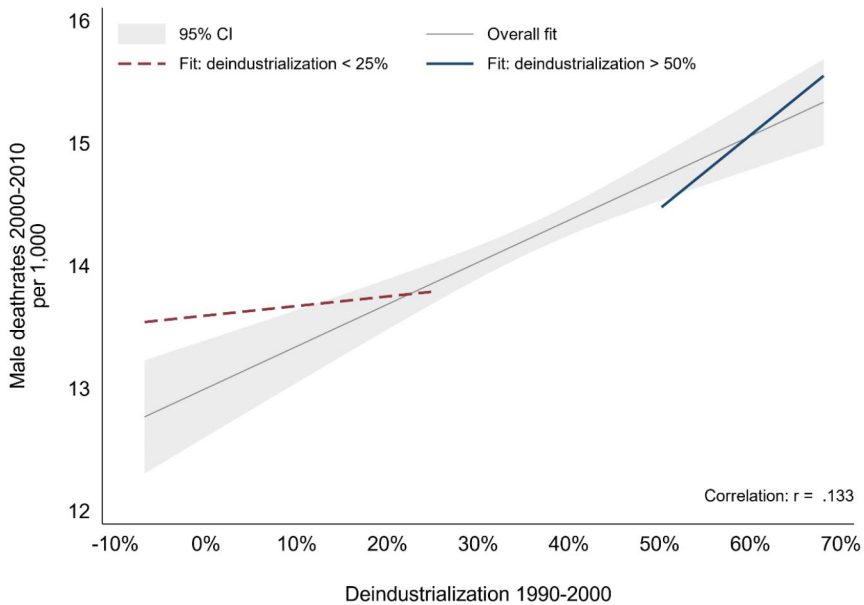


Fig. 1 Long-term association between deindustrialization and mortality in Hungary. (Note: Correlation between industrial employment decline (deindustrialization) between 1990 and 2000 and annual male death rates in the 2000 s in medium-sized Hungarian towns where industrial employment exceeded 20% of total employment in 1990 (N=92). We obtained the data on industrial employment from the Hungarian Census Records (1990, 2001, 2011) and annual male death rates from the Hungarian Central Statistical Office)

surprising, as securing the conditions for health is a central part of the implicit social contract keeping societies together, a fundamental dimension of social cohesion.

Research by Case & Deaton (2020) has already generated wide attention among medical sociologists to workers' declining health in the North American rust belt, offering parallels with Eastern Europe. Researchers have connected deindustrialization to reduced life expectancy (Nosrati et al., 2018) and the rise of prescription and illicit opioid overdose mortality (McLean, 2016; Venkataramani et al., 2020; Case & Deaton, 2020, p. 108) even noted that “it is no exaggeration to compare the long-standing misery of these Eastern Europeans with the wave of despair that is driving suicides, alcohol, and drug abuse among less-educated white Americans.” However, such an analysis of the Eastern European deaths of despair is yet to be conducted. How does deindustrialization generate adverse health outcomes, and what was its role in the wave of excess deaths in the 1990 s that plagued Eastern European countries, such as Hungary?

Medical sociology offers a fruitful way to answer this question and fill this lacuna. Medical sociology aims to “understand the general nature of social change and social institutions — to recognize, describe, and draw from these changes and institutions implications for health, illness, and healing” (Pescosolido & Kronenfeld, 1995,

p. 24). In this article, we present a novel neoclassical sociological synthesis theorizing the deindustrialization-health association. We conceptualize industry as a social institution whose disintegration has widespread implications for the social fabric. Viewing industry as an institution allows us to capture the multidimensional health implications of deindustrialization going beyond income or job loss. We extend neoclassical sociology by combining Durkheimian and Marxian concepts showing how deindustrialization creates ruptures in economic production that spill over to the field of social reproduction and gets embodied as ill health or dysfunctional health behavior. We substantiate this theoretical framework through the qualitative thematic analysis of original fieldwork data comprising 82 life history interviews conducted in Hungary's rust belt.

The need for a sociological theory of postsocialist mortality

Scholars have failed to reach a consensus on the role of upstream social factors in the postsocialist mortality crisis (see the review by Scheiring et al., 2019), mirroring the broader debates in medical sociology and social epidemiology. First, the biomedical perspective — resting upon the premise that “every disease ha[s] a specific pathogenic cause, the treatment of which could best be accomplished by removing or controlling that cause within a biomedical framework” (Cockerham, 2017, p. 28) — has proven to be marginal. The age profile (middle-aged hit more than others) and the differences in the direct causes (cancer or infectious disease did not contribute much to the excess deaths in the 1990 s, while stress-related deaths increased) point to non-biomedical causes. Infant mortality, generally considered an indicator of the quality of healthcare, also declined throughout the mortality crisis.

In contrast to the biomedical approach, neoliberal economists using neoclassical economics to legitimate their policies have been much more influential. Neoliberal economists hypothesized an “enormous scope for increases in living standards in a few years, particularly as resources are shifted out of the military-industrial complex into other sectors” (Lipton & Sachs, 1992, p. 214). Neoliberal economists tend to downplay the adverse health consequences of economic dislocations. Illarionov et al., (1997, p. 156) argued that “before the reform began, many observers forecast a social catastrophe. It has not occurred.” Similarly, Bhattacharya et al., (2013, p. 232) asserted that “Russia’s transition to capitalism ... was not as lethal as commonly suggested.”

It is important to see that although many contemporary economists advocating for neoliberal policies use neoclassical economics to legitimate their prescriptions, neoliberalism and neoclassical economics are not the same (see Bockman 2007). Neoclassical economics is a synthesis of neo-Keynesian and classical economics and is the dominant paradigm in economics. A large and diverse set of economists follow neoclassical economics, and not all of them advocate neoliberal policies. Furthermore, some neoliberal ideologues, such as Hayek, were critical of neoclassical economics and followed the Austrian school. Here, we use “neoliberal economists” to refer to participants of policy discourses and “neoliberal economics” to refer to the underlying body of economic knowledge. Although we argue with neoliberal

economists, we do not argue in this article that (a) neoliberalism would always lead to health problems or (b) that it is the only cause of deindustrialization. First, the political context in which deindustrialization unfolds is essential. Countries with robust regional and social policies are better equipped to protect against the adverse health effects of deindustrialization. Second, while some neoliberal policies might contribute to deindustrialization, technological competition seems to be a critical factor in industrial employment decline in advanced countries. It also played an important role in Eastern Europe's deindustrialization in the 1990 s.

Neoliberal economists argued that workers died in increasing numbers because they made bad choices. In the neoclassical economic paradigm, individuals recognize and follow their interests under the right circumstances. The mutual interplay of the actions of utility-maximizing individuals generates a convergence with the West. It also leads to better health, provided that policymakers quickly remove socialist institutions, free up markets, and get the prices of unhealthy products right. If policymakers do not get the price of unhealthy products right, individuals can diverge from their long-term health interests and follow their unhealthy short-term preferences (Bhattacharya et al., 2013; Treisman, 2010).

Social epidemiologists disagree with neoliberal economists and prefer a psychosocial perspective instead. Epidemiological research shows that despair and stress were robust predictors of ill health during the postsocialist deaths of despair epidemic (Cornia & Panicià, 2000). Social epidemiologists identified important upstream, socioeconomic sources of acute and chronic stress, such as regional-level labor market upheaval (Walberg et al., 1998), income inequality (Marmot & Bobak, 2005), anomie (Kopp et al., 2007), and rapid privatization (Azarova et al., 2017; Scheiring et al., 2018) as significant correlates of excess deaths. Even those who kept their jobs but experienced higher workloads were at higher risk of dying (Pikhart et al., 2001). Qualitative research confirmed that shock-therapy-inspired economic reforms wreaked havoc with everyday lifeworlds and working-class communities around Eastern Europe (Burawoy & Verdery, 1999; Hann, 2019).

Nevertheless, this social epidemiological approach has some limitations. Influenced by Wilkinson & Pickett (2009) and Marmot (2004), this research tradition emphasizes cultural factors and downplays material ones. Perceived status loss and inequality are the crucial variables that mediate the effect of relative socioeconomic dislocation on health outcomes. Scholars emphasizing class-based material factors tend to be more marginal in this epidemiological research tradition (e.g., Coburn 2000; Muntaner & Lynch, 1999). Social epidemiology is empirically sophisticated — mainly quantitative — and policy-relevant. However, its primary goal is not theory building. Sociological theory, thus, can help to elucidate the link between big socioeconomic processes and individual stress, unpacking the mechanisms through which external stressors get embodied and cause ill health.

Finally, William Cockerham presented a sociological alternative to these approaches. Extending on Bourdieu's theory of habitus, Cockerham (2005) argued for the centrality of dysfunctional working-class health lifestyles and the lack of a "health-conscious middle class" as key determinants (Cockerham, 2007). This framework is a significant step ahead, showing how lifestyles are embedded in class relations. However, like neoliberal economists, Cockerham also downplays psycho-

social stress and socioeconomic dislocation. Instead of scrutinizing how dispossessions and dislocations challenge workers' health, the lifestyle approach facilitates the "individualization of health as a moral duty" (Cairns & Johnston, 2015, p. 156). As Buchowski (2006) argued, neoliberal elites in Eastern Europe blamed workers for their "civilizational incompetence" (cf. Sztompka, 1993). Lifestyles are crucial for health outcomes, but they are proximate, not ultimate, causes in most cases.

Despite the progress scholarship has made in understanding the Eastern European mortality crisis, there is a need for a sociological alternative engaging with class relations and the lived experience of deindustrialization. We contend that neoclassical sociology provides the ground for such an approach. A sophisticated theoretical understanding of the Eastern European mortality crisis might also offer insights into the deaths of despair epidemic plaguing the U.S. (for an outline of an analysis on deaths of despair in comparative perspective, see King et al., 2022).

Neoclassical sociology of deindustrialization and health

The foundations of neoclassical sociology

Caillé & Vandenberghe (2015, p. 9) argued in their programmatic call for neoclassical sociology, "to move forward, we need to go backwards and seek inspiration once again from the classics, real or putative, who identified sociology with a general social science." The first strength of neoclassical sociology is that its epistemological background allows for a disciplinary unique, robust medical-sociological analysis. Neoclassical sociology eschews positivism and constructivism and relies on critical realism instead (Gorski, 2013). Analyzing emergent properties at higher layers of social reality is central to neoclassical sociology (Caillé & Vandenberghe, 2015; Eyal et al., 2003). These emergent properties are not simple aggregates of directly observable individual phenomena. Grasping them requires both observation and theoretical reasoning. This critical realist epistemology sets neoclassical sociology apart from social epidemiology and economics alike, both implicitly or explicitly relying on a positivist framework, thus tend to neglect analyzing emergent social structures.

The second strength lies in neoclassical sociology's micro-foundation. As Eyal, Szélenyi, and Townsley (2003, p. 9) formulated, neoclassical sociology is "relational analysis." As opposed to neoclassical economics, neoclassical sociology "emphasizes the historically contingent degree of unconscious behavior, habit, and reflexive action operative in particular times and places" (Garcelon, 2010, p. 349). Choice is important, but reflexivity is limited, rationality is bounded, and a large part of agency is habitual (unconscious). This sociological model of agency is much closer to the contemporary consensus in cognitive sciences about bounded rationality than the rational actor model that continues to pervade neoclassical economics (Kahneman, 2011). Institutions are crucial in forming habitus, and habitual agency is crucial for the reproduction and change of institutions. The disintegration of institutions, therefore, has widespread implications for social life. Destroying old institutions, as neoliberals suggested, does not spontaneously result in the rapid emergence of a new market equilibrium but generates prolonged suffering.

This micro-foundation informs neoclassical sociology's macro-perspective, which is its third strength. Classical sociologists such as Marx, Durkheim, Weber, or Tönnies analyzed the capitalist transformations in the 19th century. Similarly, neoclassical sociology proposes to reorient the research focus to the capitalist transformations around the turn of the millennium. Neoclassical sociology rejects the idea of a single, homogenizing logic of capitalism. As opposed to neoliberal economists, neoclassical sociologists posit that convergence is strongly conditional. Successful transformation depends on state capacity, developmental institutions, and welfare policies that maintain social cohesion. Neoclassical sociology also does not see a single trajectory of decline that uniformly re-feudalizes Eastern Europe; it identifies dependent development with massive deindustrialization followed by reindustrialization through transnational corporations in high technology sectors (King, 2002).

Despite these strengths, neoclassical sociology has some limitations that need to be addressed. First, neoclassical sociology has been criticized for underestimating the importance of class relations (Burawoy, 2001). Although neoclassical sociologists have engaged thoroughly with the dominant class (Eyal et al., 2003; King, 2002), we agree with Bohle & Greskovits (2019) and Ost (2019) about the lack of attention to workers' experience. Responding to the critics, we extend neoclassical sociology with a more serious engagement with the working class. Second, neoclassical sociology has also been faulted for underestimating the pull force of a single capitalist logic and being too optimistic about the developmental potential of dependent neoliberal capitalist democracies in East-Central Europe (Burawoy, 2001; Scheiring, 2020). Listening and giving voice to the lived experience of workers in deindustrialized towns in Hungary is a remedy of this focus on Central European successes.

Third, some criticized neoclassical sociology for not taking culture seriously (Paretskaya, 2010). We think this is a misunderstanding, as neoclassical sociologists infused the notions of charisma and cultural capital into their class analytic framework, thereby relaxing the economic rigidity of orthodox Marxism. We do the same when relying on the cultural materialist tradition in anthropology, in line with the criticism formulated by Paretskaya (2010). We amend existing neoclassical sociological accounts with neo-Durkheimian concepts to make neoclassical sociology more sensitive to culture and better capture elements of the lived experience of deindustrialization beyond the labor process.

Recasting neoclassical sociology

Building on the tradition of cultural materialist anthropology (Harris, 1979; Kalb, 2015), we view class as a changing and antagonistic field of relations. Class is a crucial structuring factor, though not the only one; cultural materialists refuse economic determinism. As Kalb (2015, p. 16) puts it, "class is less an already-defined position that determines both consciousness and action, and more an invitation to discover people's shifting historical and antagonistic social interdependences." Class is a position and a lived experience intertwined with hierarchies of meanings, power, and dispossession.

In contrast to neoclassical economic arguments, individuals in the labor process are more than just wage earners and consumers. Similarly, society is not just "an

aggregate of stressors where the different moments of everyday life — working, consumption, and exchange — are added to form a whole” (Navarro, 1982, p. 6). Class relations encompass the fields of economic production and social reproduction, which are two sides of the same coin, functioning as a “system of interdependent parts” (Burawoy, 2001, p. 1107). “Production occupies a key place in the reproduction of society and its social phenomena, including health” (Navarro, 1982, p. 7). Social reproduction theory (Bhattacharya, 2017) is valuable to analyze contradictions of care (Fraser, 2017) and health (Toffanin, 2021). Thus, economic production and social reproduction are two intertwined social fields that transmit the effect of deindustrialization on health.

This approach to class allows for a coherent integration of Marxian and Durkheimian insights. This is not a random eclecticism. Acevedo (2005) has shown that Durkheim’s anomie and Marx’s alienation are related concepts. Durkheimian theory is helpful to “explore the diversity of social emotions ..., as well as the relationship between one type of emotion and the structural and cultural conditions in which it is likely to be formed and expressed” (Abrutyn & Mueller, 2014, p. 328). These emotions, in turn, are crucial in the stress process and the final steps of deindustrialization’s embodiment.

Deindustrialization and ruptures in economic production

The founders of sociology — Marx, Durkheim, Weber, and Tönnies — highlighted how industrialization destabilized traditional communities and brought deep suffering for the masses of impoverished workers. Contemporary sociology responded by highlighting how industrialization gave rise to an institutional framework that was crucial for social integration in the 20th century. Industrialization engendered the formation of an “industrial citizenship” (Marshall, 1950) and a politically powerful working class (Thompson, 1963), leading to an increasing labor share of national income (Kristal, 2010), which generalized trust and stabilized democracy (Tilly, 2004). Industrialization also stabilized social identities around work and place (Lamont, 2000).

Industry is thus more than just a source of jobs and income. We conceptualize industry as a social institution, which allows us to capture the multidimensional health implications of deindustrialization going beyond income or job loss. In their famous social-psychological study on unemployment, Jahoda et al., (1971) have already noted that jobs have several “latent functions” contributing to identity formation and the structuring of time. However, as Burchell (1992, p. 345) pointed out, this social psychological literature tends to neglect the “widespread and complex ways in which conditions in the labor market affect the psychological health of the population.” We follow a sociological approach in contextualizing the role of industry. This is a theoretical innovation. Medical sociology has identified important upstream political-economic institutions that fundamentally shape health outcomes, such as welfare state institutions (Beckfield et al., 2015; Muntaner et al., 2011). However, curiously, the role of industry as an institution has received less systematic attention in health research.

In the tradition of Polanyi and Bourdieu, we start from the recognition that agency is embedded in institutions, which form the core of social fields, define rules, roles, and expectations, and stabilize patterns of behavior (Bourdieu & Wacquant, 1992; Polanyi, 1957). Institutions have relational, i.e., interpersonal, and embodied traits (Garcelon, 2010, pp. 330–331). The latter implies that institutions also operate without reflection through habitual routines. Garcelon (2010, p. 329) noted that “institutions may undergo sudden bouts of rapid change or even disintegrate outright, in the process destroying the coherence of previously stable fields.”

The collapse of the industry as an institution is a disintegrative process, creating ruptures in the field of economic production that can only be captured by a multidimensional analysis. First, deindustrialization is a prime source of (1) *labor market dislocation (job/income loss)*. Demand in the service sector cannot easily replace the rapid decline of labor demand in manufacturing because most skills acquired in manufacturing “travel very poorly to service occupations” (Iversen & Cusack, 2011, p. 326). Thus, deindustrialization is a leading cause of protracted unemployment (Kollmeyer & Pichler, 2013) and poverty (Brady & Wallace, 2001). In Eastern Europe during the early 1990 s, many lost their jobs and permanently exited the labor market. Some could retire, others joined the ranks of the sub-proletariat (or underclass).

Second, deindustrialization also leads to (2) *increased exploitation (work-load, precarity)*. In *Capital*, Marx (1976[1867]) identified two forms of exploitation. Exploitation through absolute surplus value extraction entails a lengthening working time. However, a less direct form of exploitation — the extraction of relative surplus value — is far more common. Increasing the intensity of work (by working faster, working with more efficient instruments), changing the organization of work, or reducing the protection of workers are the most common forms of (relative) surplus value extraction. This is a generic feature of capitalism. However, regulations and the organizational characteristics of industry allowed for a reduction of exploitation in the 20th century, as we noted previously. Deindustrialization shifts the risks back to workers. For example, fewer workers have full-time jobs with an unlimited contract, and more of them work as freelance pizza delivery “entrepreneurs,” taking on all the risk it entails. This was even more pronounced in socialist Eastern Europe, where securing a modicum of stability and welfare for workers was crucial for the legitimacy of socialist regimes (Hann, 2019; Szelényi, 1991). As deindustrialization and the transition to neoliberal capitalism unfolds, even those who remain employed often have to move into less desirable, more casual, non-unionized work, such as low-paid service jobs (Kalleberg, 2009).

Third, deindustrialization (3) *increases social inequality (income, race/ethnicity)*. The industrial sector typically offers higher wages than the service sector, where wages are lower and more unequal. Deindustrialization is associated with rising income inequality because it entails workers’ movement from industry to services (Alderson & Nielsen, 2002). The same is true for Eastern Europe, where inequalities have also grown (Bandelj & Mahutga, 2010; Ghodsee & Orenstein, 2021), and upward mobility has stagnated. (Jackson & Evans, 2017). Deindustrialization disproportionately hit the Roma ethnicity in Hungary, contributing to racial discrimination and segregation (Schafft & Brown, 2014).

Fourth, deindustrialization also leads to (4) *disruption of community services*. Industrial companies usually provide a wide array of fringe benefits (Licht, 1998) and health insurance coverage (Renner & Navarro, 1989). The jobs that emerge after deindustrialization provide less of these benefits. The destruction of industry also puts local government budgets under pressure, which have to downsize public services to maintain fiscal balance, leading to devastating social and health problems (Wallace & Wallace, 1998). These disruptions to services were even more pronounced in Eastern Europe. Socialist companies provided many public services, including health, care, housing, holiday homes, sports- and cultural facilities. East European firms spent about 2-5% percent of the GDP on social provision (Cook, 2007, pp. 39-40). These company functions ceased with mass plant closures. Finally, industry contributed to vibrant work- and neighborhood communities in socialist Eastern Europe (Scheiring, 2020).

Deindustrialization and ruptures in social reproduction

As deindustrialization transforms the field of economic production, its effects also spill over to the field of social reproduction. First, labor market dislocations and the disruption of services cause (a) *material deprivation and physical suffering*. The adverse health effect of unemployment is well-established (Avendano & Berkman, 2014). Material deprivation is a crucial cause of ill health, independent from status loss and relative deprivation (Muntaner & Lynch, 1999). Sudden loss of income creates multiple new stresses, such as increased food insecurity, difficulties with paying the mortgage, rent, or utilities, and poor housing conditions, which negatively affect health (Sherman, 2013).

Second, increased exploitation leads to (b) *job strain*. As Marx (1976[1867], p. 377) noted: “If then the unnatural extension of the working day, which capital necessarily strives for in its unmeasured drive for self-valorization, shortens the life of the individual worker, and therefore the duration of his labor-power, the forces used up have to be replaced more rapidly, and it will be more expensive to reproduce labor-power.” Exploitation through relative surplus value extraction also increases job strain. Anger, frustration, anxiety, and helplessness are the most important socio-emotional corollaries of job strain (Siegrist, 2001, p. 116). Research has robustly underpinned that work stress (Siegrist, 2001), precarious employment (Quinlan et al., 2001), and work schedule instability correlate with ill health (Schneider & Harknett, 2019).

Third, labor market dislocations cause (c) *fatalism and shame*. According to Durkheim, fatalism is a state of “futures pitilessly blocked and passions violently choked by oppressive discipline” (Durkheim, 2002[1897], p. 239), a failure to live according to socially prescribed and internalized identities (Acevedo, 2005). Work identity is central to workers’ self-conception: they derive a positive sense of self from disciplined, hard industrial work (Lamont, 2000). When individuals cannot fulfill the roles prescribed by their identity, it leads to fatalism, shame, and inferiority. Fatalism appears to be an essential factor behind the deaths of despair epidemic in the U.S. Deindustrialization alters what “it means to be a man (or a white man) and what is expected,” leading to increased working-class suicides (Abrutyn & Mueller, 2018,

p. 60). Manufacturing companies also lend a special status to places of industry. The closure of manufacturing capacities can erode this local pride, leading to a sense of abandonment, a feeling of being left behind (Popay et al., 2003), causing mental health problems and decreased coping capacity (Ross, 2000; Thomas, 2016).

Fourth, the disruption of public services also leads to *(d) increased domestic workload*. Non-commodified institutions are crucial to mitigate the inherent tension between economic production and social reproduction in families (Bhattacharya, 2017; Fraser, 2017; Toffanin, 2021). For social reproduction, families (mostly women) produce “free” public goods that underpin wage labor and market-based production. Socialist, company-based public services were universal and legally prescribed. During the transition from socialism to capitalism, these public services became untenable, shifting the cost of care work onto families. Unpaid care responsibilities and the declining access to public or private care services intensify domestic workload, an essential source of chronic stress leading to lower self-reported health (Krantz & Ostergren, 2001).

Fifth, social inequalities and the disruption of services lead to *(e) anomie and anger*. According to Durkheim, social order rests on people’s belief that the distribution of power and resources is just, i.e., normatively well-regulated. As Durkheim (2002[1897], p. 211) noted, it is “little use for everyone to recognize the justice of the hierarchy of functions established by public opinion, if he did not also consider the distribution of these functions just.” Sudden economic change (crisis or rapid growth) propels some to amass immense wealth while others fall behind. When this happens, individuals think that the distribution of hierarchy is unjust and society’s moral order has broken down. Durkheim labeled this situation anomie. Under these circumstances, “men are more inclined to self-destruction” (Durkheim, 2002[1897], pp. 206–207).¹ As Dew (2015) pointed out, Durkheim was also aware of the need for state regulation and public services; otherwise, “the struggle grows more violent and painful, both from being less controlled and because competition is greater” (Durkheim, 2002[1897], p. 214). The erosion of public services previously tied to companies contributes to the spread of unregulated (less regulated) markets. Deindustrialization thus leads to a symbolic devaluation of workers’ status. Perceived injustice, the “status syndrome,” is a robust predictor of worse physical and mental health (Marmot, 2004; Wilkinson & Pickett, 2009).

Sixth, labor market dislocation, exploitation, and the disruption of communal services lead to *(f) community disintegration and hopelessness*. Disintegration negatively affects workplace communities, neighborhood communities, friendships, and families. According to Durkheim, individuals left on their own find it harder to find meaning in their lives and are more prone to hopelessness. “The bond that unites them with the common cause attaches them to life, and the lofty goal they envisage prevents their feeling personal troubles so deeply” (Durkheim, 2002[1897], p. 168). Without this social support, the “individual yields to the slightest shock of circumstance because the state of society has made him a ready prey to suicide” (Durkheim,

¹ Building on Durkheim’s anomie concept, Merton (1938) defined “retreatism” (including alcohol and drug-abuse) as a consequence of the failure to meet expectations. Retreatism is close to the notion of fatalism as we use it in this article.

2002[1897], p. 173). A vast literature on social capital has established community disintegration as a crucial determinant of ill health (Carpiano, 2006; Kawachi et al., 1997).

Seventh, as Marx described, commodification, exploitation, and the disruption of services generate (*g*) *alienation and powerlessness*. Alienation is a “pathological cognitive state” that “occurs in response to the inequitable interactions that take place within the dehumanizing constraints of the capitalist labor process” (Acevedo, 2005, p. 79). Capitalism in general causes alienation, but deindustrialization intensifies it — the same as with exploitation. The commodified production of goods under capitalism appears for workers “not as their own united power, but as an alien force existing outside them, of the origin and goal of which they are ignorant, which they thus cannot control ... independent of the will and the action of man” (Marx & Engels, 1974, p. 54). This alienation has four dimensions, the alienation from the labor process, from fellow workers, from the object of labor, and from the human experience itself (“species nature”). The alienation of workers from each other can lead to “seeing others as a source of competition” (Yuill, 2005, p. 138). In this sense, alienation is related to Durkheim’s notion of disintegration (Acevedo, 2005; Lukes, 1977). The corollary of alienation is the sense of powerlessness; the two concepts allow for a robust social theory of health (Yuill, 2005). Alienation elucidates the social background of the psychological literature “learned helplessness,” i.e., the negative consequences of being unable to control suffering (Seligman, 1975). Empirical research has shown that the commodification of the labor process and the concomitant alienation and powerlessness damage mental and physical health (Crimson & Yuill, 2008; Koltai & Stuckler, 2020; Ross et al., 2001).

Finally, stress is a critical component of the mechanism linking deindustrialization to health. The stress process (Pearlin, 1989; Thoits, 1995) translates external stimuli — the intertwined ruptures in economic production and social reproduction — to bodily responses through which deindustrialization gets “embodied” (Krieger, 2005).² Fig. 2 presents an overview.

Data and methods

Fieldwork

The qualitative fieldwork formed part of the Hungarian arm of the Privatization and Mortality (PrivMort) project, an indirect demographic, retrospective multi-country cohort study studying the health effect of the economic transformation in Eastern Europe. The PrivMort project, funded by the EU Commission, is the most extensive data-gathering effort so far on the upstream socioeconomic causes of the postsocialist mortality crisis (for a description of the study protocol, see Irdam et al., 2016). Four former socialist industrial towns in Hungary were identified based on their economic profiles, as shown in Fig. 3: Ajka, Dunaújváros, Salgótarján, Szerencs.

² As defined by Krieger (2005, pp. 351–352), “embodiment, as an idea, refers to how we, like any living organism, literally incorporate, biologically, the world in which we live.”

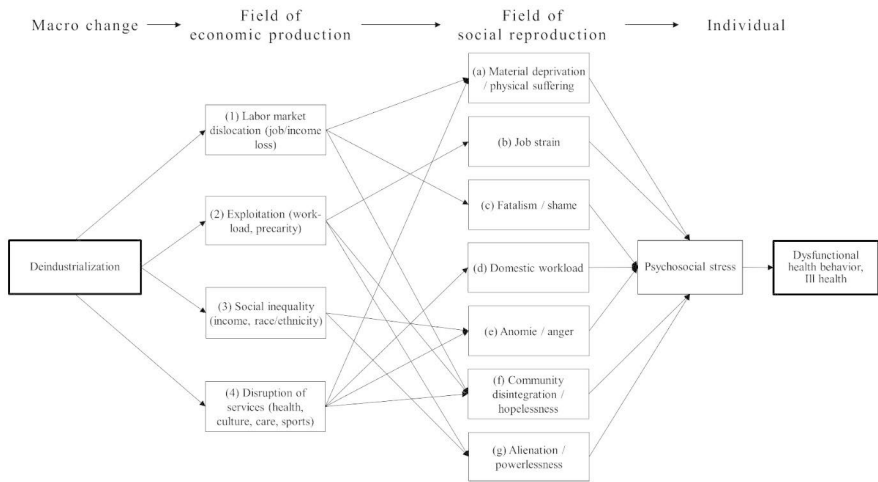


Fig. 2 Deindustrialization, social disintegration, and health – a neoclassical sociological model



Fig. 3 Fieldwork map

These towns experienced varied privatization strategies (dominant foreign, dominant domestic, prolonged state ownership) and significant deindustrialization exceeding a 25% decline in the manufacturing workforce. Two towns (Salgótarján, Szerencs) stood out with a severe manufacturing collapse exceeding 50%. These four towns represent typical medium-sized rustbelt towns; 30% of Hungarians live in

Table 1 Socioeconomic characteristics of the four interview towns

Note. Source of data:

Hungarian Central Statistical Office. Deindustrialization is measured as the percentage change in industrial employment to population ratio from 1989 to 1995. The death rate is deaths per 100,000 inhabitants

	Deindustrialization (1989-1995)	Unemployment 1994	Death rate 1994	Population 1989	Population 2010
Ajka	Moderate (36.1%)	7.9	944	34,502	29,419
Dunaújváros	Moderate (27.6%)	7.8	1,027	62,533	48,187
Salgótarján	Severe (50%)	12.7	1,410	48,538	37,632
Szerencs	Severe (51.2%)	10.8	1,748	10,381	9,321

such towns. Table 1 presents the socioeconomic characteristics of the four interview towns.

With six research assistants, we conducted 82 semi-structured life-history interviews with workers in these four towns between September 2016 and January 2017. We used snowball sampling. We identified the first eight interviewees through the authors' networks and contacting local trade unions and civic associations. The interviewees also recommend further interviewees at the end of the interviews. Occasionally, interviewees were also randomly asked on markets in the towns to participate in an interview later in their homes. Thus, most of the interviewees are from outside of the initial networks. We selected interviewees to have a reasonable variation in individuals' demographic, health, political and economic characteristics and to be able to compare their experiences before and after the transition. Accordingly, we excluded persons born in the 1980 s or later.

Most of the respondents were semi-skilled and skilled manual workers. Interview quotes indicate interviewees' most typical job around the onset of plant closures in the early 1990 s. Table 2 provides an overview of the interviewees' demographic characteristics. Half of the interviewees (40 people) experienced unemployment between 1989 and 2017; 21 lost their job due to plant closure, and 19 were laid off without or before plant closure. Seventeen interviewees reached retirement age at their company, and a further seven interviewees could retire early.

The interviews relied on a semi-structured questionnaire (see online supplement). The questions included basic demographic and labor market characteristics and open-ended questions about the lived experience of economic change (family life histories, health status, perceptions about the towns' recent economic history, and broader society). Interviewees talked about their own experience and the health of close relatives, including deceased ones. Interviews lasted 120 min on average. The total corpus of the 82 interviews is 816,118 words long, encompassing 2000 typed pages in Hungarian (available from authors upon request).

Analysis

We apply qualitative thematic analysis to explore the life history interviews. We combine this with limited quantitative topic modeling using word and theme frequencies. We shift our attention from an in-depth exploration of micro-stories and localities to the more general and generalizable aspects. As defined by Guest et al., (2011, pp.

Table 2 Descriptive statistics of interviewees

	No. of interviewees	Avg age (in 1989)	Age group (age in 1989)				
			10–20	21–30	31–40	41–50	51–60
	N		N (%)	N (%)	N (%)	N (%)	N (%)
Ajka	20	34	1 (5)	4 (20)	11 (55)	4 (20)	0 (0)
Dunaújváros	13	38	0 (0)	3 (23)	5 (39)	4 (31)	1 (8)
Salgótarján	24	36	1 (4)	5 (21)	13 (54)	2 (8)	3 (13)
Szerencs	25	34	1 (4)	7 (28)	12 (48)	4 (16)	1 (4)
Total	82	36	3	19	41	14	5
	Gender		Highest degree				
	Male	Female	Primary	Second	College		
	N (%)	N (%)	N (%)	N (%)	N (%)		
Ajka	10 (50)	10 (50)	1 (5)	17 (85)	2 (10)		
Dunaújváros	9 (69)	4 (31)	0 (0)	8 (62)	5 (38)		
Salgótarján	14 (58)	10 (42)	1 (4)	11 (46)	12 (50)		
Szerencs	10 (40)	15 (60)	2 (8)	16 (64)	7 (28)		
Total	43	39	4	52	26		

13–15), qualitative thematic analysis is dedicated to understanding and giving voice to interviewees’ “perceptions, feelings, and lived experiences.” It is a “rigorous, yet inductive, set of procedures designed to identify and examine themes from textual data in a way that is transparent and credible.”

We use this method in the framework of *theory-building process-tracing*, seeking to build a midrange theory describing generalizable causal mechanisms without claiming that the detected causal mechanisms fully explain the outcome (Beach & Pedersen, 2013, p. 16). Our approach is explorative: it involves reading, deconstructing, and constructing theory parallel to empirical work. Our initial hypotheses revolved around the health consequences of unemployment, privatization, foreign and domestic ownership. However, analyzing the interviews, the theme of deindustrialization emerged as a more fundamental cause of health outcomes. The theory presented in the previous section is a result of the empirical analysis as much as it is rooted in deductive reasoning based on engagement with the literature.

The interviews were explored through a recursive, iterative thematic analysis process using NVivo 12. First, we randomly selected ten interviews and read them carefully to understand the texts’ inner context and map emerging themes. Second, after reading all of the interviews, we coded them for labor market, demographic, and vital information, recorded in spreadsheets. We coded the interviews for health and mental health-related themes in the third wave. We thoroughly reread the interviews in the

fourth round and coded them for socioeconomic themes. We identified the emerging themes and mechanisms by analyzing interviewees' emic understandings (from the actors' perspective), moving towards etic understanding (the analysts' perspective) of lived experiences (Harris, 1979, pp. 32–45). These themes and mechanisms did not exist before the interviews — they were the results of the analysis.

Table 3 provides an overview of the thematic map of the interviews, indicating the frequency of interviewees talking about the specific theme. Because the interviews relied on open-ended questions, not all interviewees talked about the same topics; the emerging topics reflect a degree of spontaneity. Thus, these frequencies are not representative surveys and should not be read as questionnaires or analyses. However, the frequencies indicate that the topics and quotes below are not cherry-picked and marginal; the interviewees frequently discuss the themes represented by the quotes. The online supplement presents further details on the towns, the interviewees, and the interviews.

Deaths of Despair in the Postsocialist Rust Belt

(a) Material deprivation and physical suffering

Though some interviewees readily link health and health behavior to social factors, most often, the underlying stressors have to be teased out indirectly as part of an etic analysis. Half of the interviewees mentioned feeling some form of stress or depression, which might include emotional distress in the context of lay discourses. Circulatory system diseases stand out concerning physical health problems, often related to psychosocial stress in the public health literature.

Late socialism in Hungary was a welfare dictatorship based on a redistributive mixed economy (Szelényi, 1991), allowing for a stable, predictable environment, fulfilling basic needs, and low inequalities (Hann, 2019). Although many interviewees complained without prompting about economic inefficiencies and political repression, the experience of permanent employment, low inequality, and the security of housing profoundly influenced everyday lives during socialism. Interviewees did not regard the macro problems associated with state-socialist economies as threatening or problematic. A significant share of interviewees recalled having high expectations of the transition to capitalism; however, it turned out to be a negative experience for the majority.

Many interviewees talked about the devastating experience of mass plant closures, which directly or indirectly affected their lives. Ten interviewees talked about personally experiencing severe material deprivation. A Roma interviewee recalled particularly severe financial deprivation as she lost her job and divorced her alcoholic husband in the early 1990s: “I lost my job, I had to steal wood from the forest, baked my bread, sewed everything for ourselves. I cried when I saw the old factory building” (Unskilled worker, Power Plant, Salgótarján).

Overall, we found little evidence that material deprivation, as described by this unskilled worker, was a direct source of suffering; most interviewees talked about shame and stress concerning job loss. However, this does not mean that material

Table 3 Thematic overview of the interviews with frequencies

Theme	Interviewees		Theme	Interviewees	
	%	N		%	N
Health			Inequality		
smoking, regular smoker	46%	38	victims (negative, blaming)	11%	9
drinking, occasionally	35%	29	victims (positive, empathy)	38%	31
drinking, regularly	33%	27	winners (negative)	27%	22
drinking, socialist culture	7%	6	winners (positive)	4%	3
drinking, stress coping	7%	6	foreign investment (positive)	35%	29
drinking, access to homemade palinka/wine	15%	12	foreign investment (negative)	35%	29
depression	49%	40	colonization	10%	8
stress	35%	29	dispossession	27%	22
cancer	15%	12			
circulatory problems	28%	23	Communities		
joint and bone disorders	15%	12	community (positive past)	41%	34
problems of the digestive system	10%	8	community (negative present, destruction)	24%	20
			brigade movement (positive past)	28%	23
respiratory problems	4%	3	kaláka* (positive past)	15%	12
			connections (positive present)	30%	25
Economic deprivation			hostilities (negative present)	11%	9
plant closure (direct, indirect experience)	44%	36			
personal financial deprivation	12%	10	participates in social organization	33%	27
inflation & debts	43%	35	trade union (positive past)	29%	24
fear of job loss	16%	13	trade union (negative present)	38%	31
shame of deprivation	17%	14	family breakup/divorce	20%	16
<i>Work-related pressures</i>			<i>Community services</i>		
vulnerability	32%	26	factory doctor (positive past, loss)	5%	4
unfair treatment	27%	22	holidays (positive past, loss)	32%	26
precarity	20%	16	housing (positive past, loss)	34%	28
work intensity	35%	29	training (positive past or present)	23%	19
			culture, sports (positive past, loss)	22%	18
<i>Social identities</i>			<i>Despair</i>		
work identity (positive past, disruption)	26%	21	hope (positive past - 1990 s)	37%	30
work identity (positive present, continuity)	6%	5	hope (negative present - desperation)	27%	22
place identity (positive past, disruption)	22%	18	efficacy (control over social change)	5%	4
shrinking town	24%	20	powerlessness (no control over change)	43%	35
class identity (disintegration)	72%	59	abandonment	17%	14
class identity (continuity)	5%	4			

Note: * kaláka means something like “voluntary reciprocity-based self-help groups.”

factors — the quality of housing or insufficient nutrition — did not cause physical suffering. These likely played a role among the most impoverished people (the home-

less, or persons in deep poverty). However, the socioemotional corollaries appeared more critical in our interviewees' experience, who are above the underclass.

(b) Exploitation and job strain

Keeping one's job was no guarantee of better health. The new jobs that replaced the jobs lost with plant closures offered lower salaries, were more precarious, or entailed a higher workload. Deindustrialization unfolded as part of commodification and precarization of jobs, leading to increased exploitation.

Deindustrialization wiped out jobs, leading to a chronic oversupply of labor, which propelled interviewees to work harder and tolerate unfair treatment, overwork, and precarity. Overwork under increasingly unpredictable circumstances was a frequently cited reason for stress. Some had to work undocumented and complained about the lack of fringe benefits or health insurance:

There was this small company I was working for, and I thought I was, you know, working legally, registered. And you know, they sort of forgot to pay my health insurance. And I got pneumonia, and I went to the doctor, and the dear doctor tells me: "what should I do with you now, how should I assign you to sick leave?" He tells me I don't have health insurance. And I was like: "whaaat, that cannot be true, what the hell?" (Skilled worker, Ajka, Alumina Factory).

Interviewees often referred to a feeling of vulnerability, feeling unsafe in their precarious jobs: "When you know a certain bad thing, it's better, but the uncertainty, that's the worst" (Unskilled worker, Ajka, Coal Mine). A worker at a telecommunications company complained about the destabilization of his work routine:

We had a system for everything, for instance, eating. Almost everybody ate at the same time, together. Then the company closed down this department. Then at the new job, we had no regular meals anymore. I usually drove and worked hundreds of kilometers like this. I missed the community, having a hot meal together, or a good breakfast. I did not feel healthy. So, I went to the doctor. It turned out I had this problem, rectal cancer. (Skilled manual worker, Salgótarján, National Post Telecommunications Division)

An unskilled worker recalled that she liked her job at the Ajka Coal Mine but had to quit in the 1990 s. She took on a job as a seamstress off the book ("black work"), worked in three shifts, got depressed, got fired, then finally went on to work as a cleaner, which at least she found less precarious and unpredictable. Workers seemed powerless against exploitation (a theme that we explore as part of the section on alienation). However, unemployment benefits in the early 1990 s were generous in Hungary, which allowed a temporary way out for some. A woman recollected how her ex-miner husband lost his job when the mine was closed. He was reluctant to take on a new job in one of the newly emerging factories because they offered lower salaries:

There were a lot of recently unemployed people back then. They were used to a decent salary at the Coal Mine. But these new plants only offered the minimum wage. Ex-miners didn't want to work there, my husband included. (Skilled worker, National Rail, Ajka)

Not only employees of industrial plants experience exploitation. The increased competition and the precarization of economic production led self-employed ex-workers to self-exploitation, culminating in chronic stress. A former skilled worker, who left his company during its downsizing and had started to work as a self-employed entrepreneur (his business was still operating at the time of the interview), said the following:

Before the regime change, life was much better (laughs). We could have a rest. You knew you had a safe job, secure income, a way to make a living. You knew you could go on holiday; you could raise your kids. You weren't indebted. You could live a decent normal life. You were healthy; you were not stressed. Nowadays, we're under huge stress. I can hardly get any sleep these days. (Skilled manual worker, Alumina Factory, Ajka)

(c) Fatalism and shame

Socialism, especially in the regional industrial strongholds, resulted in a complex industrial lifeworld with the working class at its core, leading to strong work, class, and place identities among men and women (see Scheiring 2020). Under socialism, manufacturing jobs were prized with high status, financial stability, and meaning (Burawoy & Lukács, 1992). Socialist companies were large, integrated companies with a well-recognized brand, which imbued industrial towns with a strong sense of place and local pride. "We were Steelworks employees; this used to mean a lot" (Middle manager, Steelworks, Dunaújváros).

Deindustrialization disrupted these work- and place-identities, generating fatalism and shame, among the most frequent themes in the interviews. According to Durkheim, fatalism ensues when socially prescribed expectations enslave individuals who lack the means to fulfill these expectations, leading to shame. The experience of deindustrialization is ripe with such fatalism and shame. Workers reported a positive work identity in the past but increased difficulties with attaining a positive identity through work after the regime change. A widowed interviewee (Middle manager, Szerencs, State Food Cooperative) recalled crying that, for some time, she was able to make more money than her precariously employed husband. However, she did not tell him in order not to hurt him. The difficulties associated with maintaining the male breadwinner model destabilized traditional gender identities and a masculinity crisis in ex-industrial towns.

Interviewees often talked about indebtedness as a source of shame, especially in a generational context: while older interviewees could secure their housing during socialism before 1990, following the complete privatization of public housing, younger interviewees had to take out unsustainably high loans to buy a house, with their parents supporting them. An interviewee talked about how she felt ashamed that

her mother helps her out with paying back the loans: “my mother has a good pension; however, it is a shame that my retired mother supports me” (Office assistant, Szerencs, School).

As plants were closed down, the loss of jobs or the fear of job loss became permanent features of everyday lives. In general, we found that men were more reluctant to talk about the experience of shame than women. A widowed wife reported a typical trajectory consisting of job loss, shame, and alcoholism:

You know, this came with the regime change. Many families experienced the same story as us. My man was good at his job. Then he was fired. You know, when he lost his job, he could not handle it. He was totally beaten mentally. He drove himself into the ground. He drank, then his ulcer perforated. (Middle manager, Szerencs, State Food Cooperative)

Some interviewees also talked about acquaintances having committed suicide in response to the shame caused by unemployment:

I worked there as a security guard for two and a half years in the 1990 s. During those years, many people were fired. Four of them committed suicide at home. They hanged themselves after they were fired. (Skilled manual worker, Steelworks, Salgótarján)

Interviewees who lost their job were sometimes isolated from their friends because of their perception of low self-worth. An interviewee — again, a woman — talked about how social isolation gradually engulfed her as the shame of unemployment drove her away from meeting friends:

It didn't matter that I had many friends and acquaintances, I told several of them and asked for help, but I felt it didn't work out. So, I left it. And then, after some time, I didn't tell anyone. I didn't want to embarrass anyone. I just avoided them. (Middle manager, Sugar Factory, Szerencs)

In addition to these work-related identities, deindustrialization also affected place-based identities. For example, the town of Szerencs identified itself as the town of sugar and chocolate. When Nestle restructured its production globally, it stopped manufacturing chocolate in Szerencs, which hurt interviewees' pride, “you know what they left here, they left here the production of dog food” (Clerk, OTP Bank, Szerencs).

Interviewees recalled the closure of the sugar factory in Szerencs as a profoundly traumatic event, with words reflecting the embodied pain of jobless workers: “When they shut down the plant, it was like if someone cut my neck artery” (Foreman, Sugar Factory, Szerencs). People recalled the plants' closure in other towns with vivid, often biological imaginary, referring to illness or dying. Deindustrialization also drives away young people, leading to a profound depopulation. As the towns shrink and young people leave, those who stay behind are enmeshed in a feeling of abandonment and spatial traumatization:

Children were playing here; kids used to play football or hide and seek. You could hear the children playing. Now there is only silence. (Skilled worker, Steelworks, Salgótarján)

The main street used to be a lively place, full of people. Now it's empty. Shop windows are boarded up. This town is dead. It's totally dead. It's sterile like a moonscape. (Clerk, OTP Bank, Szerencs)

(d) Increased domestic workload and stress

Company-based services were a particular feature of socialist economies, including health care, childcare, holiday facilities, cultural and recreational services, or company housing (Schmidt & Ritter, 2013, pp. 47–50). Companies and trade unions owned outlets at beloved recreational spots in the country that people could visit each year free or for a significantly subsidized price. Everyone had social insurance; thus, people could go on sick leave if they were ill. These company-related state-socialist institutions also allowed for more gender equality, a better combination of work and family. However, gender values remained traditional. The destruction of company services shifted care burdens onto families and induced a re-traditionalization of the division of labor.

The closure of company-provided public services had the impact of privatizing previously socialized care and parenting costs. This significantly increased the workload on families, especially women. Together with the need to work more to maintain their living standard, this significantly increased pressure on couples. Interviewees sometimes mentioned this increased workload on families as a reason for family breakup:

We lived at my mother's place, one room, two children, were building our house, had to work more and more, took on too much, and then, you know, our private life got neglected. And then, you know, he found another woman, they are still together, he always had her full attention. You know, when he wanted some grilled chicken at 10 pm, she fixed him a grilled chicken. I didn't have any energy left for these things. (Clerk, OTP Bank, Szerencs)

Divorce increased stress and financial strain, which negatively affected health. Under these circumstances, if women tried to stay employed in the new capitalist economy, the increased workload sometimes destabilized families. Thus, a larger share of women was forced to stay at home instead of work.

It is difficult to detect the direct health effect of increased domestic workload because many interviewees internalized the gendered expectations attached to the role of the housewife. Nevertheless, quotes like the one above hint at significantly increased unpaid care work, which is a crucial source of stress based on the literature (Krantz & Ostergren, 2001), and has also been well-documented in postsocialist Hungary (Gregor & Kováts, 2019). These gendered differences in coping strategies might explain why deindustrialization was more health-damaging for men in the short run in the early 1990s and why women had lower death rates in towns where the state

continued to operate industrial facilities in the 2000 s (Azarova et al., 2017; Scheiring et al., 2018, 2021). Towns, where the state remained a dominant owner, retained their industrial capacities more than privatized ones, maintaining some company-based public services, which reduced stress outside work.

(e) Anomie and anger

The way interviewees talk about social inequalities significantly differs from the scholarly discussion of the topic: no one mentioned the word “inequality.” However, in their own words, interviewees described a devastating experience of growing social inequalities as a source of injustice and anger — just as Durkheim proposed in his theory of anomie.

Deindustrialization represented new hardships and insecurities for the majority, identifying former industrial and agricultural workers as the victims. Many of them were Roma. As industrial plants were closed down, ethnic inequalities grew, leading to particularly pronounced forms of perceived injustice. Frequently, interviewees talk about the Roma as victims who had the opportunity to work before the regime change but were laid off with the mass plant closures. One of our Roma interviewees confirmed this. He described that he was born in a “telep,” a ghetto-like poor quarter of Salgótarján without pipe water, also called Gypsy Hill. This “telep” was restructured entirely during socialism in the 1970 s; every family got a new home elsewhere. For his family, socialism meant modernization and consolidation; the regime change and the attendant deindustrialization brought the opposite:

Before socialism, most gypsies³ were totally excluded. Most of them worked day jobs, except for musicians, like my granddad. Then after the world war, there were new jobs, new homes, a completely new life. For my family, socialism was absolutely positive. Most of the gypsies thought it would get even better with the regime change. Then came inflation, unemployment, homelessness for many. Gypsies were the first to get fired. Or reduced their pay. For example, at the Steelworks, my brother earned 20% below the minimum wage before he got fired.” (Skilled worker, Post, Salgótarján).

Another Roma interviewee recalled a similar process of material advancement under socialism. Born in a family of five children with a history of drinking and family violence, she loved her work as a cleaner and janitor at the local power plant, bringing stability to her life. However, her life got significantly worse as a spiral of alcoholism and joblessness engulfed her husband, leading to violence that harmed their two children’s mental health. (Unskilled worker, Power Plant, Salgótarján)

These ethnic inequalities were further strengthened by the explicit anti-Roma attitudes prevalent among some of the interviewees, who tried to distance themselves from the ethnicized underclass, claiming that “uneducated, idle Gypsies” only have to thank themselves for their lot.

³ Our Roma interviewees referred to themselves as Gypsies (‘cigány’).

Losing a job was not only a source of shame. Some also felt it was unjust, not only blaming themselves but being angry at the company elite for the unjust process. A former clerk at the Dunaújváros Steelworks felt that being fired only one year before retirement after a life of hard work to save her boss's relative from getting fired was humiliating. She started to cry again when recollecting her memories:

I felt stumped, trumped upon; they humiliated me so much. When you feel like you could retire with dignity after forty years of hard work, and I couldn't just get over it. I had to attend these sessions. And I was angry at the world for a very long time. Angry at people. I didn't really speak to anyone at that time. I felt violated. I felt stigmatized. (Clerk, Steelworks, Dunaújváros)

A significant share talked about the new rich angrily, mainly in the context of plant closures, facilitating the emergence of previously unforeseen wealth inequality, a profound source of perceived injustice. As companies were closed down and liquidated, former managers could pick the most valuable assets to start their own enterprise, which led to a rapid increase in inequality:

Those who were making the decisions, the inner circle, those in the right place at the right time, they won. I couldn't have bought the machines I was working with. Those valuable machines. They could, for nothing. This was deeply unjust. (Skilled manual worker, Steelworks, Salgótarján)

While workers lost their jobs, former managers amassed personal wealth as Hungary's new bourgeoisie was created. Stories of dispossession, theft, "economic colonization" by foreign investors, and irresponsible management are frequent topics concerning downsized companies' fates.

In addition to growing social inequalities, interviewees also perceived the elimination of free or heavily subsidized company-based public services as unjust. One interviewee expressed this as reducing their freedom, a form of injustice, a world out of its moral balance:

We could do sports and participate in cultural events. Compared to how much we made, we could go on excursions, on holiday. And now that the world has expanded, I cannot feel it now because I have not many opportunities here. (Middle manager, Szerencs, Sugar Factory)

(f) Community disintegration and hopelessness

A large share of interviewees reported positive associations regarding communities at the companies they used to work for. Interviewees often described the companies or their smaller collectives as families, where people could trust each other and count on each other. "Kaláka" is a Hungarian expression referring to voluntary self-help among friends and acquaintances, who would typically help each other build their homes. Industrial companies facilitated these company-based communities through various feasts, cultural events, and community activities through the socialist bri-

gades' movement.⁴ People joined these brigades, organized holidays and company competitions, and renovated schools.

Working-class communities were not always beneficial for individuals. Some also reported that strong bonds among workers also facilitated the culture of drinking: "People working with hot steel, they get thirsty, and there were lots of pubs to visit" (Skilled manual worker, Steelworks, Dunaújváros). A significant proportion of the interviewees — both occasional and regular drinkers — mentioned having access to homemade palinka (a spirit distilled from fruits) or wine, making it less likely that alcohol price would affect their drinking habits. Several interviewees also directly mentioned stress as a crucial environmental factor behind their drinking habits. "I saw alcoholism increasing among desperate people. They did not have money for bread but found ways to buy booze" (Skilled worker, Coal Mine, Ajka).

However, for most interviewees, the communities that evolved around companies played an important role in psychological health, identity formation, and material benefit. As companies were the providers of town-level sports and cultural services, deindustrialization killed local sports and cultural life:

There was a separate community house, the *Bányász Culture Home*. I had a season ticket to the *Petőfi Theatre*. The firm subsidized the season ticket; we went every season for 10-11 years. There was significant sports activity, the *Ajka Miner Sports Club*, with three football pitches. The *Glass Factory* also had a sports facility, and there was the so-called *Aluminum Sports Club*. These were fierce competitors. Can you imagine a match between them in the town? (Miner, Coal Mine, Ajka)

Interviewees often talk about the closure of these services as part of community degradation and urban shrinkage. The loss of vibrant cultural and sports life is a sign of abandonment, of being hopelessly left behind in a disadvantaged region: "We were abandoned. This region was abandoned, they don't care about us" (Unskilled worker, Power plant, *Salgótarján*).

Finally, the precarity of labor relations that arose with deindustrialization also severely strained the closest communities, i.e., families. Several interviewees revealed that financial problems directly led to animosity within the family:

We had a perfect marriage, indeed. And when one tries to give the same as they were used to giving and cannot manage, people start having disagreements. Then, one only sees from the inside that this has to be ended because otherwise, it will not end well. (Skilled worker, Ajka, Coal Mine)

Alcohol was also sometimes implicated in breakups. Several interviewees described how unemployment led to alcoholism, family problems, and breakup in the neighborhood. As a woman recalled her story, her husband's drinking problems worsened as

⁴ Socialist brigades were informal groups organized by the companies and the party to facilitate the emergence of working-class culture and a socialist version of corporate identity. These brigades competed with each other in terms of work performance, but they also facilitated informal outings and community work.

he saw people, sometimes friends, getting fired. Even though he could keep his job, “he became an alcoholic, and he did all what most alcoholics do, hurt his family, so this was one of the reasons for our breakup” (skilled worker, Glass Factory, Ajka). Breaking up is a stressful event, even if desired by the participants, and might lead to health problems. A skilled healthcare sector worker in Ajka described how losing her job and breaking up at the same time in 1992 ignited her dormant chronic autoimmune disease: “my illness was at 200% back then”. In the long run, as some interviewees described, losing a partner can increase financial strain and end in spiraling debts both for the partners and their broader family, which again acts as a risk factor for stress-related diseases.

(g) Alienation and powerlessness

The experience of alienation is present in several forms in interviewees’ recollections. For some, alienation and powerlessness are the consequence of consecutive experiences of being unable to cope with all the shame and injustice of unemployment: “I don’t want anyone to feel like this. The shame, the troubles, the bills, the powerlessness. I couldn’t sleep. It’s horrible” (Clerk, State Food Cooperative, Salgótarján). This resembles Marx’s alienation in the sense of being alienated from one’s own human capacities.

Most often, alienation takes the form of alienation from fellow workers. The disintegration of communities entailed increasing hostilities among fellow workers, which Marx described as a crucial dimension of alienation. This is related to the Durkheimian notion of disintegration, with an added element of powerlessness. The closure of companies weakened workplace communities by increasing hostilities as the competition got fiercer for increasingly scarce resources such as jobs. The fear of joblessness had a long-term impact on the moral fabric of communities:

These conflicts had an impact on people. This turned people against each other. The thing that you should get fired, I don’t want to get fired. I don’t want my family to be insecure. It’s your family that should be insecure, not mine. So, in a sense, this was a fight for survival. (Foreman, Sugar Factory, Szerencs)

Changing moral narratives about worthiness also facilitated alienation among workers. As a new neoliberal culture emerged, many subjects reported that the race for accumulating consumer goods turned people against each other. This is not a direct consequence of industrial employment collapse, but a sociological analysis of deindustrialization should not separate it from upstream neoliberal policies that transformed the social fabric. Consumerism facilitated alienation:

This race, this drive to prove you’re worthier, affected communities. I was also like this. I felt better. I felt more than others because I was among the first couple of people in Szerencs to buy a VHS recorder. (Skilled worker, Sugar Factory, Szerencs)

Many interviewees also connected the increased competition for jobs with the weakness of the working class. An overwhelming majority of the interviewees thought that the working class disintegrated, class as a collective identity ceased to exist: “There is a working class, as I am part of it. However, we do not call it the working class anymore” (Skilled manual worker, Steelworks, Dunaújváros).

Another source of alienation and powerlessness is the collapse of trade unions. Industrial plants were strongly unionized, and the closure of these industries significantly weakened trade unions, engendering a sense of losing control. If new jobs were to replace the old ones, they were most often non-unionized. Through eroding trade unions, deindustrialization contributed to a general political alienation:

Even if they have rights, they have no money to pay for the court and hang on when they are dismissed. Who has money has rights. So, you cannot enforce your rights. (Skilled manual worker, Ajka, Alumina Factory)

The lived experience of deindustrialization was tightly interwoven with the loss of working-class culture. Being a member of an organized working class allowed for a sense of freedom, paradoxically, even in an authoritarian regime, while the loss of this community alienated workers from each other, generating a sense of powerlessness and unfreedom:

If there were such a working class today, I would be happy to join it. It was great to be in the workers’ movement. You were freer. This is still in our hearts. And now, I think it does not exist anymore. This free social movement does not exist. (Skilled manual worker, Salgótarján, Power Plant)

Many interviewees reported that they feel themselves at the whim of forces beyond their control, which fuels a sense of powerlessness. Although the sample contained interviewees with higher-than-average social capital, only a few said they felt they could influence social change through influencing local or national politics. A large number explicitly reported having no control over society’s fate in general. Many felt the elites abandoned them. As a former pharmacy clerk said, “freedom is like they took off the dog’s chains, but the dog hasn’t got any food to eat.”

Others also connect their despair to the overall situation of the country, which makes it even more challenging to cope with difficulties, even three decades after the start of regime change and two decades after the majority of mines and industrial plants were closed down:

When you have a democracy, you have to make sacrifices. And we made sacrifices. The problem is that we still keep on only making sacrifices. We’re still sliding downwards. You could try to endure this with willpower, but I think that’s not fair, this is not OK, and it won’t get any better. (Former miner and security guard, Coal Mine, Ajka)

Concluding discussion

In this article, we presented a novel neoclassical sociological synthesis on the lived experience of deindustrialization. The strengths of neoclassical sociology lie in its epistemology, micro-foundation, and macro outlook that allow for a robust synthesis of prominent approaches culled from classical sociology. Neoclassical sociology eschews positivism and constructivism and relies on critical realism, which sets it apart from social epidemiology and economics and allows for analyzing emergent social structures. Neoclassical sociology's micro-foundation is closer to the contemporary consensus in cognitive sciences about bounded rationality, recognizing the importance of embeddedness of agency in institutions and networks. The disintegration of institutions has widespread implications for social life. We conceptualized industry as such an institution whose disintegration creates ruptures in economic production and social reproduction. According to neoclassical sociology, there is no spontaneous equilibrium in markets that would generate a linear convergence to the West; equally, getting the prices of unhealthy products right in itself will not generate "healthy capitalism." We responded to the critiques of neoclassical sociology by engaging with the working class and eschewing economism by relying on cultural materialism.

We applied this neoclassical sociological framework to elaborate a theory of the lived experience of deindustrialization. First, we combined Durkheimian and Marxian categories to capture how the disintegration of the industry as an institution generates ruptures in economic production, which entail job and income loss, increased exploitation, social inequality, and the disruption of services. These ruptures spill over to the field of social reproduction, generating material deprivation, job strain, fatalism, increased domestic workload, anomie, community disintegration, and alienation. These ruptures in social reproduction are sources of psychosocial stress, through which deindustrialization gets embodied as ill health and dysfunctional health behavior. We substantiated this framework through the extensive qualitative thematic analysis of 82 life history interviews in Hungary's rust belt.

Our neoclassical sociological framework is a novel contribution to political-economic theories of health and health inequality. Conceptualizing industry as an institution allowed us to map the multidimensional mechanism linking deindustrialization to ill health. Industry is a neglected but major upstream institutional determinant of health. However, it is not the only one. Other institutions, such as welfare state arrangements and regional policies, could significantly interact with this process, moderating the adverse health effect of deindustrialization. International and domestic economic policies also influence health might slow or accelerate deindustrialization. These factors go beyond the scope of the present study but are essential components of a comprehensive sociological theory of health.

Our article has some important limitations. First, interviewees are better educated and have higher levels of social capital than the national population average. However, this could mean that the interviews underestimated deindustrialization's negative effect, as less educated and more isolated people were likely more adversely affected by deindustrialization. Second, migration could also introduce a potential bias. Those who migrated away from the surveyed towns were excluded from the

study. If healthy people left the deindustrialized towns, this could result in a sample with more negative experiences with deindustrialization. However, this hardly cancels out our findings. The interviews show the effect of deindustrialization as they are perceived. The outmigration of healthier, younger people is an integral part of the process that should not be controlled away.

Third, the questions covered an extended period, potentially introducing distortions. We used multiple techniques to reduce this potential bias. After receiving the first answers, we ran a round of cognitive tests in each town and refined the interview questions. We also used introductory sentences before question sections during the interviews — a technique that increases recall precision. We also used indirect proxy questions for alcohol use questions if there was an indication the interviewee did not like to talk about alcohol consumption. We also asked interviewees to recall memorable historical and life events to help them remember things in the distant past.

Fourth, deindustrialization unfolded parallel to the economic transition from socialism to capitalism, which makes it harder to isolate the effect of deindustrialization. However, from an etic perspective, we can distinguish deindustrialization from other elements of the transition. What interviewees found most problematic were related to deindustrialization and not so much political change. Many interviewees were hopeful about the political regime change, celebrated it as “re-joining the West” with optimism. More than 80% of Hungarians supported the transition to capitalism in 1989 (Pew Research Centre, 2009; Szélenyi & Szélenyi, 1994) also argued that the loss of political legitimacy was more important to the collapse of socialism than economic questions. Nevertheless, policy factors such as trade liberalization, austerity, privatization likely influenced deindustrialization. These policies are further upstream of the causal channel; thus, it would be misleading to isolate deindustrialization from these economic policies completely.

Throughout the article, we emphasized the common, shared elements in the experience of deindustrialization. However, some essential differences across social categories are also worth noting. First, losing a job was traumatic for both genders, but the concomitant meaninglessness — loss of work identity — appears to be more devastating for men. Women talked more often about their willingness to work in new, precarious jobs or public service sectors, while some men opted for unemployment rather than accepting lower-status jobs. Expressing the experience of shame was also more common among women. This suggests gendered differences in normative expectations about coping strategies and might also reflect traditional gender values.

Second, there were also apparent ethnic differences. Some non-Roma interviewees were open to an ethnicized view of poverty, blaming the Roma for their fate, exacerbating the negative consequences of the growing ethnic divide in employment. Roma interviewees portrayed a clear picture of status loss. While older generations held jobs in the socialist industry, deindustrialization wiped out these jobs, and Roma were often the first to get fired. This sometimes led to a cascade of social, family, and health problems, including poverty, drinking, and violence.

Third, despite the population-wide negative experience with deindustrialization, less-educated workers reported more social and health problems. The few interviewees who encountered new opportunities in the 1990s referred to education as crucial in finding new jobs or advancing their careers. Educational differences were also

sometimes connected to health behaviors. The few interviewees that talked about actively taking care of their health were more educated. Again, this echoes the existing literature that shows a steep rise in educational differences in mortality from the 1980 s to the 1990 s (Doniec et al., 2018).

Despite these limitations, our results and theoretical arguments are coherent with the existing research. Labor market upheaval (Walberg et al., 1998), unemployment and job precarity (Perlman & Bobak, 2009), increased workload (Pikhart et al., 2001), and anomie (Kopp et al., 2007) were significant correlates of postsocialist mortality. Kideckel (2008) showed how the collapse of working-class culture and the symbolic violence that neoliberal elites practiced against workers caused mental and physical harm among miners and chemical workers in Romania. Parsons (2014) also demonstrated the negative health consequences of social isolation and the disruption of work identity in Russia in the 1990 s: postsocialist workers “died unconnected, unbound, unmoored” (Parsons, 2014, p. 24). Our neoclassical sociological synthesis extends on these works and offers a framework to connect the seemingly disparate threads identified by separate studies.

Deindustrialization, the upstream policies, and global challenges driving it are not unique to Eastern Europe (King et al., 2022). The combination of severe deindustrialization and the lack of effective regional and industrial policy created regionally locked-in left-behind areas with a cascade of social and economic problems in the East and the West. The neoclassical sociology of the lived experience of deindustrialization proposed here could be a fruitful way to analyze the root causes of the deaths of despair in other countries also.

Supplementary Information The online version contains supplementary material available at <https://doi.org/10.1007/s11186-022-09476-2>.

Acknowledgements The authors also express their gratitude for the superb research assistance provided by Milán Falta, Ágnes Fernengel, Péter Harsányi, András Kövesdi, Eszter Mátyás, Péter Mátyás, Eszter Turai, and Boglárka Vincze, as well as to all interviewees who spoke to us. The article benefited greatly from colleagues’ critical feedback at Cambridge and Bocconi at various research stages and reviewers’ suggestions.

Funding Open access funding provided by Università Commerciale Luigi Bocconi within the CRUI-CARE Agreement. This study was funded by the European Research Council (ERC) [grant number 269036]; as well as the support of the Cariplo Foundation and the Lombardy Region as part of the POTES project (‘Enhancing the Attractiveness of Lombardy through the Excellence of Health Economics Research’ - Ref. 2017-2077).

Declarations

Conflicts of Interest The authors declare that they have no conflict of interest.

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