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ORIGINAL PAPER

Scarred or Spared? A Review of Micro- and Macro-Level Unemployment's Effects on Children's Education and Careers

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Abstract

Unemployment has profound implications for individuals and societies. The impact of micro- (i.e., parental) and macro-level (i.e., local, regional, or national) unemployment on children's education and career outcomes is particularly relevant, as detrimental effects may perpetuate a vicious cycle, with unemployment causing more unemployment. This review has two parts. First, in a narrative review, we synthesize the theoretical perspectives on the short- and long-term effects of micro- and macro-level unemployment on children's education and careers. To do so, we draw on three main theoretical perspectives: the economic, the homophily, and the stress perspective. Second, in a systematic review, we summarize studies conducted from 1979 to 2024 worldwide across economics, sociology, psychology, education sciences, and public health, adopting an integrative, multidisciplinary approach. Key findings reveal that micro-level unemployment adversely affects children's educational and career outcomes, whereas macro-level unemployment appears to have both beneficial and detrimental effects. Our results underscore the importance of probing homology (i.e., whether macro- and micro-level effects go in the same direction) when assessing unemployment's impact on children's education and careers, as this paper shows that effects on the micro- and macro-level are not necessarily the same. Future research should focus on investigating mediating mechanisms of the relationship between macro- and micro-level unemployment and children's education and career outcomes. Additionally, we need more research on the topic from countries that are not western, educated, industrialized, rich, and democratic (WEIRD). We provide recommendations for parental and professional caregivers, teachers, and principals, as well as decision-makers in politics and organizations.

Keywords Parental unemployment · Children · Education · Careers · Homology · Intergenerational transmission

Introduction

Unemployment is one of the most pervasive economic stressors (e.g., Ernst et al., 2019; OECD, 2019) with negative effects for both the individuals concerned (Paul & Moser, 2009; Sinclair et al., 2024; Wanberg, 2012) and their families (Björkenstam et al., 2015). Moreover, the *unemployment rate* (in a geographic unit such as a local community, a region, or a country) affects families, schools, communities, and children, even if their parents are not unemployed (e.g., Sinfield, 2018). Whereas the former refers to *micro-level* unemployment, the latter refers to *macro-level* unemployment in a geographic unit. The consequences of unemployment experienced in childhood and adolescence may continue to unfold across the life course and into adulthood (e.g., Graham & Sinclair, 2024; Pearlin et al., 2005). To develop effective remedies, parents, teachers, school principals, and

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political leaders require holistic evidence regarding the significance and direction of unemployment's effects on children. Children's short- and long-term education and careers as unemployment outcomes are most relevant in breaking the cycle of unemployment and overcoming self-perpetuating social inequalities. When implementing such interventions, we can leverage children's malleability (Cantor et al., 2019). However, for interventions to be (cost-)effective, they need to address the correct target group (e.g., children of unemployed parents specifically, children in a region). Thus, a differentiation between the micro- and macro-level effects of unemployment on children's education and career outcomes is key but does not yet exist. Looking at similarities and disparities across the two levels also contributes to a more nuanced theory-building.

To provide this holistic evidence, we conduct an integrative, multi-disciplinary review summarizing unemployment's effects on children's short- and long-term education and career outcomes. We go beyond existing reviews (Kalil, 2009; McKee-Ryan & Maitoza, 2014; Ström, 2003) as we differentiate between individual or *micro-level unemployment* (i.e., being "without work," "available for work," and "seeking work"; Sengenberger, 2011, p. 11) and *macro-level unemployment* (i.e., unemployment in a geographic unit). This review combines both a narrative and a systematic review. The narrative review synthesizes the main theoretical perspectives on the effects of micro- and macro-level unemployment on children's education and careers. The systematic review compares and integrates empirical findings from different disciplines to arrive at a conceptually richer perspective, incorporating studies from 1979 (i.e., a year of tremendous societal change signifying the beginning of a new era lasting until today; Bösch, 2019) until 2024, conducted all around the world.

This review contributes to the literature in several ways. First, we distinguish between the effects of micro- and macro-level unemployment on children to advance theory-building and systematize research on "the societal implications of economic stress" (Sinclair et al., 2024, p. 441) while also probing homology (i.e., whether macro- and micro-level effects go in the same direction; Chen et al., 2005; Kozlowski & Klein, 2000). Second, we advance unemployment research by synthesizing theory and studies from different disciplines (i.e., economics, education sciences, sociology, psychology, and public health) (for calls for an interdisciplinary perspective on unemployment, see Klehe & van Hooft, 2018; Pramod & Ramachandran, 2023; Sinclair et al., 2024). Third, following a life course approach (Elder et al., 2003), we respond to calls for future research to "investigate the relationship between childhood adversity and career attainment" (Graham & Sinclair, 2024, p. 166). Finally, we bridge the scientist-practitioner gap by providing practical implications that aim to help decision-makers create effective policies and invest resources, reducing social conflict. In the following, we provide a narrative and a systematic review.

Unemployment's Effects on Children's Education and Careers from Different Theoretical Perspectives: A Narrative Review

Many scientific disciplines, such as economics, sociology, and psychology (e.g., Lindemann & Gangl, 2020; Stevens & Schaller, 2011; Winefield et al., 2005) research how unemployment affects children's education and careers and adopt theoretical perspectives. Generally, the *economic, homophily*, and *stress perspectives* inform us on how and why unemployment affects children's education and careers. Below, we introduce these perspectives and synthesize how they explain micro- and macro-level effects of unemployment on children's short- and long-term education and career outcomes.

First, the *economic* perspective (see Becker, 1965) suggests that micro- and macro-level unemployment influence the resources allocated to children's education (Catalano et al., 2011). For instance, the perspective asserts that money and time resources are allocated differently when people lose their jobs or unemployment rises. Moreover, micro- and macro-level unemployment might darken parents' and children's economic outlook (Das et al., 2020) and change the opportunity costs of time investments (see Becker, 1965).

Second, the *homophily* perspective, originating from sociology, states that "contact between similar people occurs at a higher rate" (McPherson et al., 2001, p. 416). Shared genetic information contributes to homophily. Homophily between parents and children also develops because children inherit their parents' cultural capital (Bourdieu & Passeron, 1990), which is essential to comply with school standards and attain socioeconomic success (Lareau & Weininger, 2003). Macro-level unemployment may reduce the flow of cultural capital in children's networks beyond the nuclear family and might have a similar detrimental effect.

Third, the *stress* perspective (Kahn & Byosiere, 1992)—predominantly applied in psychology—classifies micro-level unemployment as an economic stressor that elicits strain in the unemployed person (Sinclair et al., 2024). Importantly, a parent's strain can cross over to the child (Westman, 2001). Macro-level unemployment may also increase strain-inducing societal disruptions, the uprooting or breakdown of moral values, standards, or guidance that underpin disintegrated and under-regulated social systems (Durkheim, 1897/1951; Graeff & Mehlkop, 2007; Wray et al., 2011). The child's reduced health and well-being should be detrimental to their attainment of education and career outcomes (Warren, 2009).

The economic, homophily, and stress perspectives overlap in two important aspects. First, these theoretical

perspectives assert that resources and capital are central to explaining why unemployment relates to children's education and careers. In this respect, the economic perspective predominantly focuses on financial, time, and human capital resources, whereas the homophily perspective is mostly concerned with economic (i.e., financial), social, and cultural capital. The stress perspective is, on a meta-level, interested in the dynamics related to losing and gaining resources of whatever kind. Second, all three theoretical perspectives assert that educational attainment is conducive to career outcomes. In the next three sections dedicated to the theoretical perspectives, we synthesize how these perspectives explain the micro- and macro-level unemployment effects on children's education and career outcomes.

How Unemployment Affects Children's Education and Careers: The Economic Perspective

The economic perspective suggests that micro- and macro-level unemployment can have both detrimental and beneficial effects on children's education and career outcomes. Here, and in the following, we differentiate between short- and long-term effects on children's education and career outcomes (e.g., grade retention and adult income).

Micro-Level Unemployment's Short-Term Economic Effects on Children's Education and Careers

Considering the *short*-term effects of *micro*-level unemployment, detrimental effects are conceivable because households need to reduce their financial spending to deal with the acute income shock and deteriorated financial outlook caused by parental job loss (Das et al., 2020). Unemployed parents are prone to reduce investments in their children's education (e.g., private tutoring; Kenny, 1999). For instance, in Brazil, it was found that parents' unemployment decreases the probability of children's enrollment in costly but also higher-quality private (vs. state) educational systems (Reis, 2023). As DiPrete suggests (2020, p. 390), research has extensively shown that parental investment in children (e.g., in extracurricular or shadow education) correlates positively with income, whilst there is country-specific evidence that "inequality in parental investment has been growing in the United States as income inequality has risen." The added-worker effect (Lundberg, 1985) suggests that (adolescent) children of unemployed parents are motivated to leave school and work to increase the household income (Skoufias & Parker, 2006).

From an economic perspective, the beneficial effects of micro-level unemployment on children's education and careers are also conceivable because children might want to increase their effort at school and school performance to graduate on time (Adamopoulou & Tanzi, 2017). Moreover, the opportunity costs for childcare (i.e., forgone money from not working) decrease, and unemployed parents can invest more time in their children's upbringing and education (Becker, 1965; Davé et al., 2005; Kalil, 2013). Zikic and Richardson (2007) show that micro-level unemployment may allow parents to reconnect with their children. Parents' unemployment might encourage adolescents to participate in post-compulsory secondary education because of lowered job-search expectations (Micklewright et al., 1990).

Macro-Level Unemployment's Short-Term Economic Effects on Children's Education and Careers

Concerning the detrimental *short*-term effects of *macro*-level unemployment, education outcomes might deteriorate because tax revenues sink and expenditure on social assistance increases. Thus, high macro-level unemployment reduces state investments in education (Chakrabarti & Livingston, 2021; Häkkinen et al., 2003). These budget cuts can translate into teachers and school counselors being fired themselves and bigger classroom sizes (Freelon et al., 2012; Selig et al., 1985) with detrimental effects on children's learning (see Ehrenberg et al., 2001). A high local unemployment rate might increase teachers' intention to move to a 'better place' where they and their partners have better job prospects (Linnansaari-Rajalin et al., 2015). The "discouraged student effect" (Mordechay, 2017, p. 48) suggests that high unemployment rates imply education's low return on investment, which will deter adolescents from staying enrolled in post-compulsory secondary school.

Regarding the beneficial *short*-term effects of *macro*-level unemployment, the economic perspective argues that a poor economy lacks attractive job alternatives for good teachers (Hemelt et al., 2021). Consequently, Falch and colleagues (2009) show a positive relationship between macro-level unemployment and the supply of qualified teachers. Accordingly, teachers hired during a recession (vs. before or after) have higher-performing students (Nagler et al., 2020). Finally, the "warehouse hypothesis" (Bozick, 2009, p. 493) offers reasoning for beneficial effects on participation in post-compulsory schooling: Because there are fewer jobs available during a recession, the opportunity costs for participating in post-compulsory secondary education decrease, and the number of adolescents who graduate from school rises. Macro-level unemployment, thus, motivates children to 'warehouse' in an educational institution during the crisis.

Micro-Level Unemployment's Long-Term Economic Effects on Children's Education and Careers

With respect to the *long*-term effects of *micro*-level unemployment on children's education and career, detrimental effects need to be considered because young adults who

experienced parental unemployment during childhood and adolescence may not enroll in post-secondary education because they have too little funds and are too credit-constrained to do so (Barr & Turner, 2013; Oreopoulos et al., 2008). Later, these children will then lack certificates from post-secondary education to signal to future employers the skills to learn and successfully acquire human capital (Brynin & Longhi, 2009). Thus, parental unemployment may hinder children's enrollment in and graduation from post-secondary education.

However, beneficial *long*-term effects of *micro*-level unemployment on children are also conceivable when drawing rationale from path dependency (i.e., the notion that "choices and steps people make in the first few years of their career may modify their future career possibilities and, in that way, their subsequent career success"; Verbruggen et al., 2015, p. 103). Path dependency posits that the short-term effects of micro-level unemployment on children's education outcomes (as described above) may have effects well into adulthood. For instance, in response to parental job loss, a child is discouraged from looking for a job, stays enrolled, and eventually graduates from post-compulsory secondary school. A secondary school certificate gives them better chances to enroll in post-secondary education. Thus, human capital is developed at a potentially faster rate (Verbruggen et al., 2015). As a skilled worker, they may receive a positive label signaling high competence and/or motivation, improving their future career chances (Verbruggen et al., 2015).[1] Finally, micro-level unemployment can allow parents to engage in career exploration and career planning, which predicts finding a job that is better than the previous one (Zikic & Klehe, 2006). Children might observe this behavior and learn vicariously (Bandura, 1997).[2] Relatedly, high-school graduates who experienced micro-level unemployment develop an awareness of finances and the job market and a desire to contribute (Thompson et al., 2013).

Macro-Level Unemployment's Long-Term Economic Effects on Children's Education and Careers

Concerning the detrimental *long*-term effects of *macro*-level unemployment, the hysteresis hypothesis (Blanchard & Summers, 1986) postulates that recessions have a long-lasting impact on the unemployment rate, which would not return to the pre-recession level. The reasons for this could be structural changes that create a point of no return (Røed, 1997), such as a decline in investment in research and development, a lower number of start-ups entering the market and creating new jobs, and the discouraged job search behavior of individuals (Dosi et al., 2018). Consequently, jobs may be permanently lost in a hysterical economic system if a recession reaches a tipping point (Dosi et al., 2018), and children exposed to a recession with mass layoffs may continue to experience deteriorated career opportunities as adults (provided that they are not moving [inter]nationally).

Education- and career-related decisions made during times of high or low unemployment may have long-lasting consequences over the individual's life course (i.e., a form of path dependency; see Schwandt & von Wachter, 2023). For instance, staying enrolled in post-compulsory education in times of high local youth unemployment might enhance one's chances of enrolling in post-secondary education (see Sievertsen, 2016). This might also explain the detrimental and beneficial effects of children's exposure to *macro*-level unemployment on *long*-term career outcomes.

Taken together, the economic perspective argues that *micro*- and *macro*-level unemployment can have both detrimental and beneficial effects on children's *short*- and *long*-term education and career outcomes.

How Unemployment Affects Children's Education and Careers: The Homophily Perspective

Homophily is one's tendency to interact more with others who are similar (vs. dissimilar) in terms of status and values (McPherson et al., 2001). Also, children are subject to homophily in their nuclear family and extended social networks. Homophily in families can be due to sharing the same genetic information and family socialization (see McPherson et al., 2001). In the following, we draw on Bourdieu and Passeron's (1990) position regarding the reproduction of socioeconomic success and cumulative inequality theory (Ferraro et al., 2009) to derive the homophily perspective on the detrimental effect of micro- and macro-level unemployment on education and career outcomes. When deriving the role of homophily in explaining the effects of micro- and macro-level unemployment on children's education and careers, we first shed light on short-term effects and then on the long-term effects.

Unequal Access to Cultural Capital in Homophilous Families and Networks: Explaining the Short-Term Effects of Micro- and Macro-Level Unemployment

In a world of widening inequalities, Bourdieu and Passeron's (1990) arguments for the intergenerational transmission of class membership, a form of socioeconomic success, are ever more pertinent when looking at the

[1] Notably, the effect may be opposite, if the child exposed to parental unemployment is encouraged to look for a job and leaves school.

[2] We want to thank our Action Editor for these suggestions.

short-term effects of *micro*-level unemployment on children's education.[3] The authors assume that parents and children develop status homophily. That is, socioeconomic success is reproduced over generations. Bourdieu and Passeron (1990) observe that socioeconomic success goes along with access to more cultural capital or "widely shared, high status cultural signals (attitudes, preferences, formal knowledge, behaviors, goods and credentials)" (Lamont & Lareau, 1988, p. 156). Like economic capital, cultural capital is transferred from generation to generation (Bourdieu & Passeron, 1990). To evaluate educational attainment, schools implicitly assess students' cultural capital (e.g., knowledge of the refined arts and music; Bourdieu & Passeron, 1990). Lareau and Weininger (2003) argue that cultural capital also manifests itself in "micro-interactional processes" (e.g., parents intervening on behalf of their children, p. 568), which is highly relevant for educational attainment. Furthermore, children learn as part of family socialization what aspirations they can hold for their socioeconomic future (Weininger & Lareau, 2018), thereby mirroring societal realities that are, strictly speaking, not necessities (Weininger & Lareau, 2018). If an unemployed parent has a lower level of cultural capital to transfer to their children, these children have lower chances of attaining beneficial education outcomes. The relationship between the unemployed parent and their partner is also subject to homophily: People are more attracted to and more likely to marry each other if they are similar (Kalmijn, 1998), for instance, in terms of education (Blossfeld, 2009). Consequently, the homophily perspective would be pessimistic about whether the other parent can compensate for the lower level of cultural capital accrued by the unemployed parent.

Interestingly, *macro*-level unemployment may also impact the flow of cultural capital toward the child or adolescent via their extended networks and have *short*-term effects. Cultural capital is also acquired through friendships (inside and outside school), extended family, and organized activities (Holt et al., 2013). These networks are prone to change with unemployment (Gassman-Pines et al., 2015). Children may experience their ties with others decreasing in number and strength if others become poorer due to family members losing their jobs (House et al., 1988). Research on the neighborhood level mirrors these results. People living in disadvantaged (vs. advantaged) neighborhoods (with high unemployment rates) report poorer levels of support, trust, and cohesion among residents (Kawachi, 1999; Leventhal & Brooks-Gunn, 2000; Sampson et al., 2002). Chetty and colleagues (2016) investigated the neighborhood's effect experimentally. They showed that children of participants from a disadvantaged neighborhood who were randomly selected to move to a better area had higher college attendance rates and earnings as adults than the control group if children moved before turning 13. In sum, the homophily perspective would assume that *micro*- and *macro*-level unemployment reduces the flow of cultural capital toward the child and has detrimental *short*-term effects on education and careers.

Cumulative Inequality in Homophilous Networks Explaining the Long-Term Effects of Micro- and Macro-Level Unemployment in Children

Cumulative inequality theory (Ferraro et al., 2009) argues that children's early disadvantages—due to their exposure to micro- and macro-level unemployment and reduced access to cultural capital (see Bourdieu & Passeron, 1990)—accumulate over the life course. Accordingly, children's poor short-term outcomes of *micro*- and *macro*-level unemployment should translate into poor *long*-term outcomes. Due to status homophily, disadvantaged children are part of networks with other disadvantaged people (see McPherson et al., 2001). The Matthew principle (i.e., the rich get richer while the poor get poorer; Merton, 1968) governs these networks. Thus, social inequality is not only cumulative (Ferraro et al., 2009) but is also aggravated due to interactions with status-similar network members: "advantages individuals obtain from initial endowments (e.g., financial or cultural resources) may be compounded by network influences, exacerbating intergroup inequality […] relative to what we would expect based on individual differences alone" (Di Maggio Garip, 2012, p. 94).

More precisely, members of high-status networks have ample chance to learn from and exert normative influence on each other (i.e., reward 'positive' behavior and punish 'negative' behavior; DiMaggio & Garip, 2012). Resources and opportunities can flow easily within these networks, from which disadvantaged people are excluded, hampering their chances for socioeconomic success. Marmaros and Sacerdote (2002) allude to how cumulative inequality may be aggravated through homophilous networks. The authors found that already-privileged members of a fraternity/sorority landed better-paying first jobs through their networks than non-members (Marmaros & Sacerdote, 2002). Taken together, from the homophily perspective, *micro*- and *macro*-level unemployment should have detrimental *short*- and *long*-term effects on children's education and careers.

[3] Socioeconomic class and employment status are not the same. Yet, we posit that Bourdieu and Passeron's (1990) arguments for the intergenerational transmission of class membership are also relevant when looking at the effects of micro-level unemployment on children's education and careers. All else being equal, micro-level unemployment should go along with parents' reduced access to cultural capital. Skilled workers (who possess educational certificates evidencing their cultural capital) are, on average, less affected by unemployment than unskilled workers (US Bureau of Labor Statistics, 2024). Furthermore, the assumption that employees are more likely to lose their jobs if they lack cultural capital is reasonable.

How Unemployment Affects Children's Education and Careers: The Stress Perspective

The stress perspective postulates detrimental effects of micro- and macro-level unemployment on children's education and career outcomes. Children's deteriorated well-being is the central explanatory mechanism of these effects. Parental micro-level unemployment is a well-established economic stressor (Sinclair et al., 2024) with negative well-being consequences (McKee-Ryan et al., 2005; Paul & Moser, 2009), also transmitted to children (i.e., via psychological crossover; Westman, 2001). Similarly, macro-level unemployment is a contextual factor that can cause social instability, moral deviance, and social disintegration (i.e., anomie; Durkheim, 1897/1951; Lee & Pescosolido, 2024; Wray et al., 2011), which are detrimental to children's well-being. In line with this reasoning, Bronfenbrenner's ecological systems model (1977) posits that children's interactions within the family, the school, and the community influence children's development. The health selection hypothesis (Warren, 2009) argues that children's well-being is beneficial for education and career outcomes because well-being is a prerequisite for learning.

The Role of Crossover for Children's Experience of Micro-Level Unemployment

In line with the stress perspective, Westman's crossover model (2001) proposes three mechanisms explaining why child well-being suffers from *micro*-level unemployment. Direct crossover, first, is characterized by close partners empathizing with each other so that strain is transmitted from one person to another (Westman, 2001). Job loss elicits an income shock that causes financial strain and lower levels of well-being (Mordechay, 2017). Also, an unemployed person's partner experiences the negative effects of unemployment on well-being (Voßemer et al., 2024). Thus, poor well-being should cross over from the unemployed parent (and the other parent) to the child because of the child's empathic reaction.

Indirect crossover, second, pertains to a situation in which one person's strain impairs the interaction with a close other. Thus, the other will also experience strain (Westman, 2001). The parent–child interaction may deteriorate in the case of micro-level unemployment because of parents' frustration from unmet financial or psycho-social needs (see Jahoda, 1982), which may be associated with frustration and aggression (Berkowitz, 1989).

Spurious crossover, third, posits that an event or condition may have similar well-being effects on parent *and* child (see Westman, 2001). Micro-level unemployment may elicit a cascade of stressors affecting the whole family (Walsh, 2016): Stigma (Brand, 2015; Sinfield, 2018), parental divorce (Banzhaf, 2018), or residential relocation (Pissarides & Wadsworth, 1989) associated with micro-level unemployment should have negative well-being outcomes for both. Empirical evidence shows the negative effects of micro-level unemployment on children's well-being (Björkenstam et al., 2015; Mörk et al., 2014).

Anomie and Children's Experience of Macro-Level Unemployment

According to the stress perspective, *macro*-level unemployment as a contextual variable should detrimentally affect society due to anomie (Durkheim, 1897/1951). Anomie describes how "a particular social system begins to crumble or fall apart," for instance, due to unemployment, bringing societal destabilization and moral deviance (Teymoori et al., 2017, p. 1009) even to the point of increased suicide rates (Durkheim, 1897/1951; Lee & Pescosolido, 2024; Wray et al., 2011). Macro-level unemployment should also have less catastrophic effects on (still employed) parents, teachers, and other community members with whom the child is interacting. Consequently, children's well-being may deteriorate.

Macro-level unemployment may cause parents to experience job insecurity and have a less optimistic outlook on the economy (Das et al., 2020). Job insecurity is an economic stressor (Sinclair et al., 2024), associated with children's negative mood and cognitive difficulties and poor school performance (Barling & Mendelson, 1999; Barling et al., 1999). Also, teachers may experience job insecurity (see Mouza & Souchamvali, 2016) when macro-level unemployment is high. Their classrooms change as well: they are less funded (Chakrabarti & Livingston, 2021; Häkkinen et al., 2003), more crowded (Freelon et al., 2012), and see worse child behavior (see Schneider et al., 2015) and less friendly student interactions (Hill et al., 2011). Thus, teachers experience more strain, poorer motivation, and less commitment during a recession (Huure et al., 2015; Linnansaari-Rajalin et al., 2015), with negative effects on students' well-being (Van Peteghem et al., 2007).

The community is also affected by macro-level unemployment. Lower tax revenues during a recession contribute to the impoverishment of neighborhoods, adding environmental stressors (Evans, 2004). Macro-level unemployment may increase social stress and decrease cohesion, for instance, due to stigmatization (Gassman-Pines et al., 2015; Sinfield, 2018). Some families might choose to move to 'escape' these poor conditions (Langella & Manning, 2022), even though moving can disrupt their children's lives (Jelleyman & Spencer, 2008). The adverse effects of macro-level unemployment on children's well-being are corroborated by a higher incidence of child maltreatment at times of low (male) employment (Lindo et al., 2018) and more pediatric hospitalizations and poorer children's mental health being observed during recessions (Colvin et al., 2020; Golberstein et al., 2019).

Reduced Well-Being Explaining the Relationship Between Micro- and Macro-Level Unemployment with Short- and Long-Term Education and Career Outcomes

The stress perspective argues that *micro*- and *macro*-level unemployment deteriorates children's well-being (see above), which, in turn, has negative effects on their *short*- and *long*-term education and career outcomes. The conservation of resources theory (Hobfoll et al., 2018) explains these effects on well-being. According to Hobfoll and colleagues, people "strive to obtain, retain, foster, and protect" resources (2018, p. 106). Thus, losing resources causes stress and makes one more vulnerable to losing more resources when encountering future stressors, causing a "loss spiral" (Hobfoll et al., 2018, p. 106). For example, children who suffer from detriments to their mental health (i.e., a resource) in response to micro- and macro-level unemployment may face difficulties in the process of attaining a school certificate (i.e., a resource), making it harder to find employment (i.e., a resource). The notion of stress proliferation (Pearlin et al., 2005) emphasizes "that serious stressors […] tend to give rise to additional stressors" (p. 210), causing health disparities and limiting success in the "education-occupation-economic chain of status contingencies" (p. 207).

In line with this, the health selection hypothesis posits "that individuals' health influences their ability to attain or maintain desirable socioeconomic positions and resources" (Warren, 2009, p. 2126). Children's well-being, deteriorated by micro- and macro-level unemployment, may cause problems with educational attainment: sickness absence, cognitive and sensory-perceptive problems, and lack of energy (i.e., correlates of poor health and well-being) make it difficult to learn and attend school (Basch, 2011). However, educational attainment is decisive for adult socioeconomic success (Warren, 2009). Importantly, negative strain consequences do not necessarily onset immediately with the exposure to the stressor but may also be delayed (see Zapf et al., 1996). Consequently, stressors with negative health and well-being consequences may impede the attainment of education and career outcomes later in time. Thus, the stress perspective argues that *micro*- and *macro*-level unemployment should have detrimental *short*-term and *long*-term effects on children's education and careers.

In sum, the economic, homophily, and stress perspectives differentially explain the link between micro- and macro-level unemployment with children's education and careers. Thus, we ask the following research questions (RQ), also presented in Fig. 1:

RQ1: Is children's exposure to micro-level unemployment detrimental or beneficial for children's short-term education and career outcomes?

RQ2: Is children's exposure to macro-level unemployment detrimental or beneficial for children's short-term education and career outcomes?

RQ3: Is children's exposure to micro-level unemployment detrimental or beneficial for their long-term education and career outcomes?

RQ4: Is children's exposure to macro-level unemployment detrimental or beneficial for their long-term education and career outcomes?

Systematic-Review Method

Our systematic review used a database-driven search approach (Hiebl, 2023): On January 19, 2024, we conducted a systematic literature search in two multi-publisher databases (i.e., EBSCOhost/Business Source Premier and PsycINFO for business sources as well as behavioral and social sciences sources, respectively; Aguinis et al., 2023). To augment our sample size, we further conducted a backward search of the cited literature in seminal articles. Moreover, on November 8, 2024, we searched another database (i.e., Web of Science). Due to resource restrictions, we sifted through the 2,000 most relevant hits only (as indicated by the database). For all data-bases, we used the same publication period and the same pre-specified strings to search titles and abstracts ([unemploy* OR recession OR "business cycle" OR "Job loss" OR jobless OR "job displacement" OR redundancy] AND [child* OR adolescent* OR truan* OR pupil OR student OR school OR education OR university]) (see also Daniels, 2018). A PRISMA flow chart (see Fig. 2) summarizes this process. In total, 90 research items were included for synthesis in our review. For transparency reasons (Simsek et al., 2025), we uploaded our database to a public repository (i.e., https://osf.io/9vb8s/?view_only=df260eb6d43a416b8afad0b8037813db).

Inclusion and Exclusion Criteria

During the title-and-abstract and full-text screening, we applied Shamseer et al.'s (2015) framework to develop inclusion and exclusion criteria for the population, intervention, outcomes, and study design reported in the research items. First, in terms of *population*, we included research with children aged 21 or younger. Furthermore, we also considered relevant research that sampled adults who *previously* experienced unemployment as children (vs. those who did not). We excluded studies on the concurrent effects of unemployment on outcomes (e.g., participation in post-secondary education) in adults. Second, we included research that investigated micro- and macro-level unemployment (as opposed to economic inactivity,

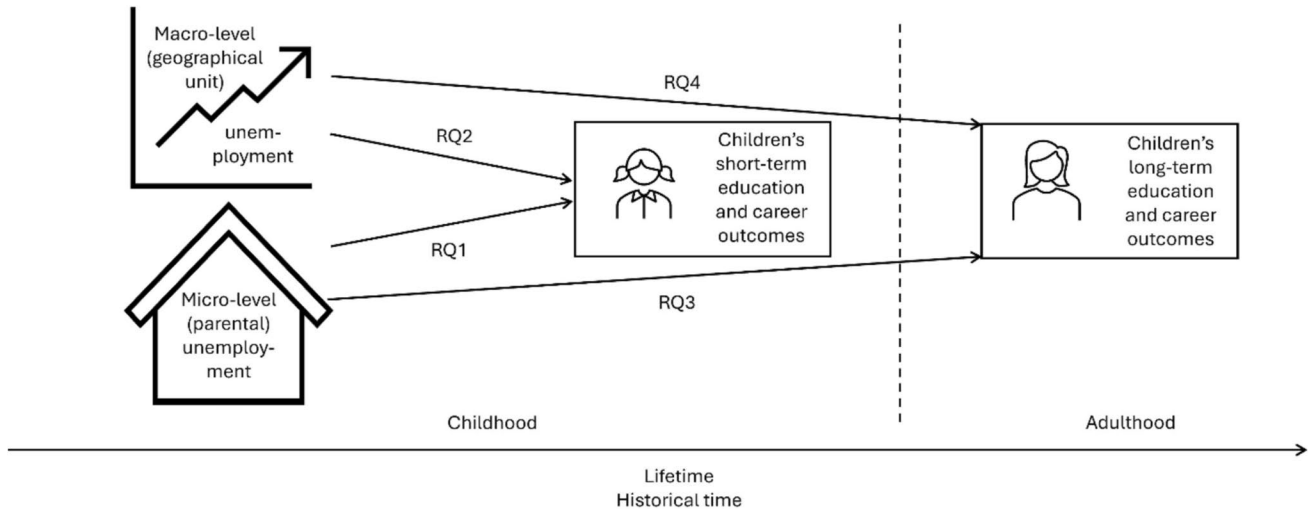


Fig. 1 Overview research questions (RQ)

joblessness, and worklessness) as an *intervention*, excluding studies on poverty, economic hardship, adverse life experiences, and low socioeconomic status.

Third, we included research on short- and long-term education and career *outcomes*. We retained research items reporting the following short-term education and career outcomes in children: school attendance, school performance, grade retention, school graduation, school dropout (e.g., after compulsory schooling), child labor/teenage labor force participation, (time in) *n*ot being in *e*mployment, *e*ducation, or *t*raining (NEET) status, and participation in post-compulsory schooling (e.g., during final years of high school). We excluded research investigating children's abilities and skills that are relevant for, but not identical to, school performance (see the differentiation between knowledge, skills, abilities, and other factors and work performance; Campion et al., 2010). Furthermore, we included research that used the following long-term education and career outcomes in adults: (delayed) participation in post-secondary education (e.g., being enrolled at a university or college), graduation from post-secondary education, adult employment, adult income, adult unemployment, adult economic activity, adult occupational prestige, and receipt of social assistance as an adult. We excluded research items investigating the choice of college major.

Finally, research items could have a quantitative or qualitative *design.* We excluded meta-analyses, qualitative reviews, commentaries, and non-empirical editorials and studies without the information that we aimed to extract (e.g., quantitative studies had to report inferential statistics). After considering grey literature (e.g., theses, conference papers, government reports, and policy briefs; see Daniels, 2018), we decided on its exclusion because the lack of peer review might compromise the quality of the reviewed evidence.

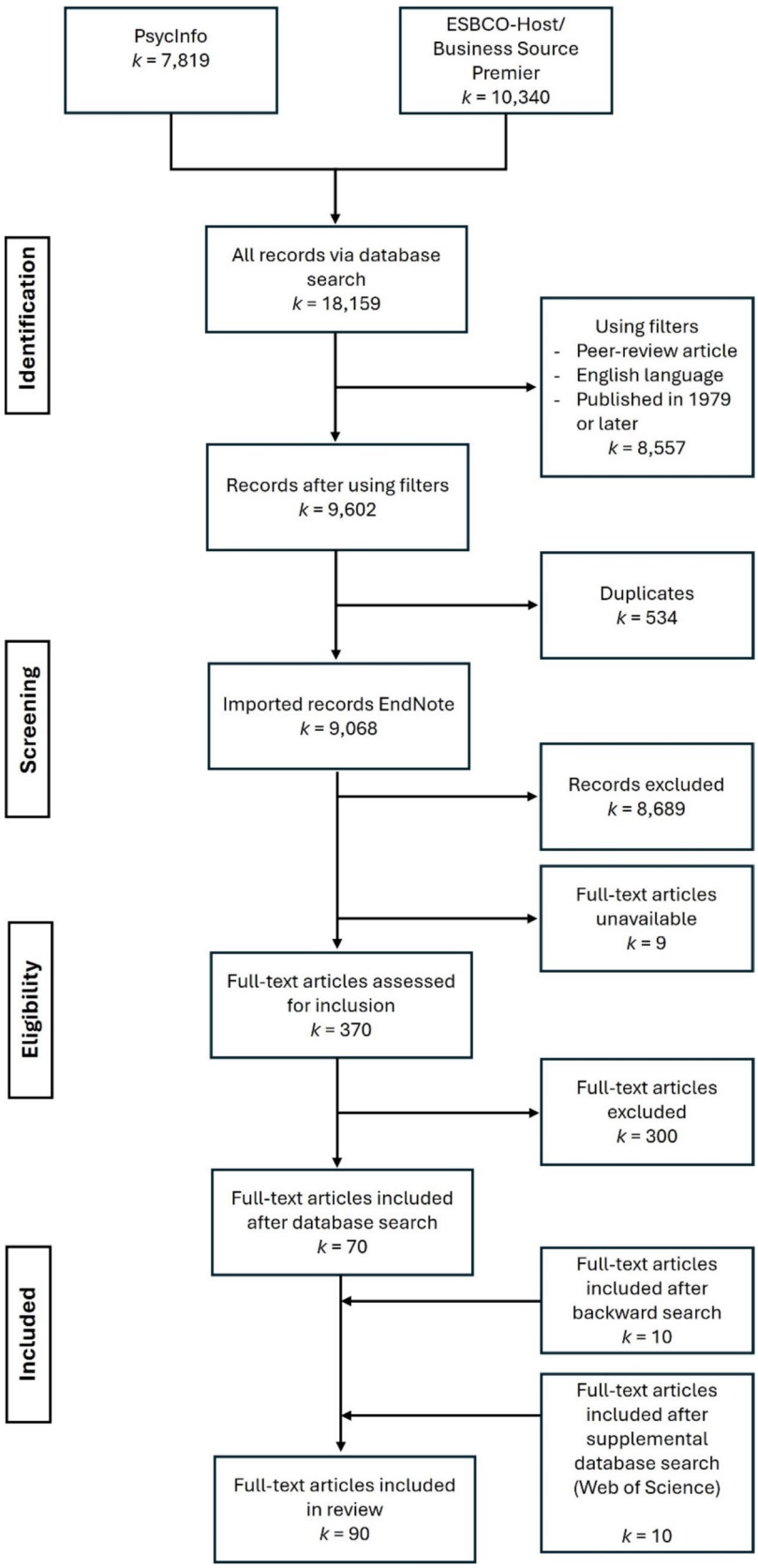
Study Coding and Data Extraction

We extracted the following information from the research items: dependent variable, author(s), year of publication, country/territory, study design, timing of child's exposure to unemployment, independent variable, significance, and direction of effects. We categorized studies according to micro- and macro-level unemployment effects and short- and long-term outcomes. These categorizations are summarized in the evidence summary tables (Tables S1–S4), which we also uploaded to a public repository (for the link, see above). We used piloted data extraction sheets to ensure consistent data extraction across studies (Daniels, 2018).

Results of Systematic Review

Our systematic review showed that studies investigating the effects of micro- and macro-level unemployment on children's education and career outcomes employ different methods. To examine the effects of micro-level unemployment, risk-factor studies compare the experiences of children of unemployed and employed individuals (Catalano et al., 2011). Typical designs are biographical (i.e., participants recounting their life course), (repeated) cross-sectional, panel, or registry studies, which link educational, social security, or tax registers. For macro-level unemployment, designs include (repeated) cross-sectional, panel, and

Fig. 2 PRISMA flow chart



net-effect studies.[4] Furthermore, most of the studies were from *W*estern, *e*ducated, *i*ndustrialized, *r*ich, and *d*emocratic (i.e., WEIRD) countries (see Table S5). In sum, 44 out of 90 studies were conducted in the UK and the USA.[5] Table 1 summarizes the systematic review's results.

Evidence on the Short-Term Effects of Micro-Level Unemployment on Children

Table S1 presents the identified articles investigating the effects of micro-level unemployment on children's short-term education and career outcomes.

Micro-Level Unemployment's Effect on School Outcomes

Regarding *school attendance* as an outcome of micro-level unemployment, we identified two studies (Ingul et al., 2012; Whyte, 1992) with a significant positive and negative effect, respectively. Skoufias and Parker (2006) showed a significant negative effect of micro-level unemployment on school attendance in girls but not boys, whereas Guzman (2016) presented a non-significant effect. The evidence regarding the link between micro-level unemployment and school attendance is thus inconclusive.

Concerning *school performance* as an outcome of micro-level unemployment, we retrieved four studies with a significant negative effect of paternal (Gregg, 2012; Rege et al., 2011; Ruiz-Valenzuela, 2020; te Grotenhuis, 1993) and four studies with a significant negative effect of maternal micro-level unemployment (Cullinan et al., 2021; Drydakis, 2023; Mörk et al., 2020; Willage & Willén, 2022) on school performance, respectively.[6] Gladwell and colleagues (2022) showed a significantly negative effect in daughters but not in sons. Three studies (Jensen et al., 2023; Peter, 2016; Youn et al., 2012) presented non-significant or mixed effects of maternal micro-level unemployment on school performance. In sum, nine studies show evidence of a negative effect of (maternal or paternal) micro-unemployment on children's school performance.

Regarding *grade retention* as an outcome of micro-level unemployment, four studies (Duryea et al., 2007; Peter, 2016; Regmi, 2019; Stevens & Schaller, 2011) showed micro-level unemployment's positive effect on grade retention, whereas one study (Skoufias & Parker, 2006) presented a non-significant effect. In sum, four studies show a positive effect of micro-level unemployment on children's likelihood to repeat a grade.

Concerning *school graduation* as an outcome of micro-level unemployment, three studies (Brand & Thomas, 2014; Hautala et al., 2021; Kallio et al., 2016) presented evidence for a significant negative effect of micro-level unemployment. Müller and colleagues (2017) showed significant negative effects of paternal micro-level unemployment in sons but mixed results in daughters. Mörk and colleagues (2020) presented no significant effects of micro-level unemployment on school performance. Drawing on four studies, there is evidence for a negative effect of micro-unemployment on children's school graduation.

Micro-Level Unemployment's Effect on Pathways After Compulsory Schooling

Regarding *school dropout* as an outcome of micro-level unemployment, three studies (Di Maio & Nisticò, 2019; Duryea et al., 2007; Micklewright et al., 1990) showed a significant positive effect, whereas Mocetti (2012) presented a non-significant effect. In sum, three studies show a positive effect of micro-level unemployment on school dropout.

Concerning *child labor* as an outcome of micro-level unemployment, Kenny (1999) suggested a positive relationship in their qualitative study.

Regarding *teenage labor force participation* as an outcome of micro-level unemployment, we identified two studies (Duryea et al., 2007; Guzman, 2016) with a significant positive and negative effect, respectively. Two studies (Skoufias & Parker, 2006; Tiggemann & Winefield, 1989) reported no significant effects of micro-level unemployment on teenage labor force participation. Thus, the evidence regarding the link between micro-level unemployment and teenage labor force participation is inconclusive.

Concerning *(the time spent in) the status of being NEET* as an outcome of micro-level unemployment, three studies (Gladwell et al., 2022; Ng-Knight & Schoon, 2017; Tiggemann & Winefield, 1989) showed either no significant effects or mixed results. Thus, the evidence regarding the link between micro-level unemployment and (the time spent in) the status of being NEET is inconclusive.

Regarding *participation in post-compulsory schooling* as an outcome of micro-level unemployment, five studies (Andrews & Bradley, 1997; Casquel & Uriel, 2009; Jensen et al., 2023; Müller et al., 2017; Sanford et al., 1994) showed either no significant effects or mixed results. Thus, the evidence regarding the effect of micro-level unemployment on participation in post-compulsory schooling is inconclusive.

[4] Net-effect studies "estimate the sum of pro- and countercyclical effects" (Catalano et al., 2011, p. 434). Statistically, procyclical effects denote positive, and countercyclical effects denote negative relationships between the state of the economy and an outcome.

[5] These 44 studies include multi-country studies that were conducted in the UK/the US and elsewhere.

[6] Six out of eight studies (Cullinan et al., 2021; Drydakis, 2023; Mörk et al., 2020; Rege et al., 2011; Ruiz-Valenzuela, 2020; Willage & Willén, 2022) investigated the effects of both paternal and maternal micro-level unemployment on school performance and showed a significant negative effect for one parent only.

Table 1 Overview of review results

Outcome category	Outcome	Predictor		Homology
		Micro level (*k*)	Macro level (*k*)	
Short term	School attendance	Inconclusive (4)	Inconclusive (2)	Unknown
	School performance	Detrimental (12)	Inconclusive (6)	Unknown
	Grade retention	Detrimental (5)	Evidence base too small (0)	Unknown
	School graduation	Detrimental (5)	Inconclusive (5)	Unknown
	School dropout	Detrimental (4)	Inconclusive (7)	Unknown
	Child labor	Evidence base too small (1)	Evidence base too small (0)	Unknown
	Teenage labor force participation	Inconclusive (4)	Evidence base too small (1)	Unknown
	(Time in) NEET status	Inconclusive (3)	Evidence base too small (0)	Unknown
	Participation in post-compulsory schooling	Inconclusive (5)	Beneficial (with the child's gender as a potential boundary mechanism) (16)	Unknown
Long term	Participation in post-secondary education	Detrimental (8)	Beneficial (6)	No
	Delay in participation in post-secondary education	Evidence base too small (1)	Evidence base too small (0)	Unknown
	Graduation from post-secondary education	Evidence base too small (1)	Inconclusive (6)	Unknown
	Adult employment	Inconclusive (3)	Inconclusive (2)	Unknown
	Adult income	Inconclusive (4)	Detrimental (4)	Unknown
	Adult unemployment	Detrimental (with parent's gender as a potential boundary mechanism) (12)	Inconclusive (2)	Unknown
	Adult economic inactivity	Inconclusive (3)	Evidence base too small (0)	Unknown
	Adult occupational prestige	Evidence base too small (0)	Evidence base too small (1)	Unknown
	Receipt of social assistance as an adult	Inconclusive (2)	Evidence base too small (1)	Unknown

In sum, to answer RQ1, the results of our systematic review suggest that micro-level unemployment has *detrimental* effects on several short-term education and career outcomes in children. However, the evidence base was inconclusive for most outcomes.

Evidence on the Short-Term Effects of Macro-Level Unemployment on Children

Table S2 presents the articles investigating macro-level unemployment's effects on children's short-term education and career outcomes.

Macro-Level Unemployment's Effect on School Outcomes

Concerning *school attendance* as an outcome of macro-level unemployment, two studies (Gunes & Ural Marchand, 2020; Keppens et al., 2018) showed positive and negative effects for different indicators of macro-level unemployment. Thus, the evidence regarding the relationship between macro-level unemployment and school attendance is inconclusive.

Regarding *school performance* as an outcome of macro-level unemployment, we identified two studies (Flowerdew & Pearce, 2001; Hemelt et al., 2021) with a significant negative effect and a positive effect, respectively, whereas four studies (Ananat et al., 2011; Edmunds et al., 2015; Häkkinen et al., 2003; Sievertsen, 2016) showed either no significant effects or mixed results. Thus, the evidence regarding the relationship between macro-level unemployment and school performance is inconclusive.

Concerning *(timely) school graduation* as an outcome of macro-level unemployment, Reiling and Strøm (2015) showed a positive effect, whereas four studies (Hershbein, 2012; Pirog & Magee, 1997; Raaum & Røed, 2006; Rao, 2016) showed no significant effect. Thus, the evidence regarding the relationship between macro-level unemployment and school graduation is inconclusive.

Macro-Level Unemployment's Effect on Pathways after Compulsory Schooling

Regarding *school dropout* as an outcome of macro-level employment, Micklewright and colleagues (1990) showed

a significant positive effect, and three studies (Crofton et al., 2009; Dellas & Koubi, 2003; Rees & Mocan, 1997) showed a significant negative effect. Three studies (Meschi et al., 2019; Mocetti, 2012; Von Simson, 2015) presented no significant effects or mixed results concerning the link between macro-level unemployment and school dropout. Thus, the evidence regarding the effects of macro-level unemployment on school dropout is inconclusive.

Concerning *teenage labor force participation* as an outcome of macro-level unemployment, Rivkin (1995) showed a significant negative effect in boys and mixed results in girls.

Regarding *participation in post-compulsory schooling* as an outcome of macro-level unemployment, five studies (Arenas & Malgouyres, 2018; D. Clark, 2011; McVicar & Rice, 2001; Rafee & Willms, 1989; Rice, 1999) showed significant positive effects.[7] Two studies (Pissarides, 1981; Rivkin, 1995) presented significant positive effects of macro-level unemployment on participation in post-compulsory schooling in boys but not in girls,[8] whereas two studies (Merrilees, 1981; Whitfield & Wilson, 1991) showed this effect in girls but not boys.[9] Petrongolo and San Segundo (2002) found some indicators of macro-level unemployment to be positively related to participation in post-compulsory education in boys but mixed results in girls. The pattern was reversed for other indicators. In contrast, two studies (Casquel & Uriel, 2009; Gray et al., 1992) reported a significant, negative relationship between macro-level unemployment and participation in post-compulsory schooling. Four studies (Armstrong, 1999; Dellas & Koubi, 2003; Miller, 1983; Reiling & Strøm, 2015) showed no significant effect or mixed results regarding the link between macro-level unemployment and participation in post-compulsory schooling. In sum, ten studies lean towards a positive effect of macro-level unemployment on participation in post-compulsory schooling, with the child's gender potentially being a relevant boundary condition.

In sum, to answer RQ2, the results of our systematic review suggest that macro-level unemployment has a *beneficial* effect on short-term education and career outcomes in children. However, the evidence base was inconclusive or too small for most outcomes.

[7] D. Clark's study (2011) showed that one macro-level unemployment indicator relates positively to post-compulsory schooling participation. When looking at another indicator, the positive effect was only significant in boys but not in girls.

[8] Pissarides (1981) did not show significant results for one indicator of macro-level unemployment.

[9] Merrilees (1981) found in their study that gender-specific youth unemployment experienced at 15 was positively related to participation in post-compulsory schooling in girls but not in boys. At 14, the positive effect was significant for both boys and girls. At 16, the effect was non-significant.

Evidence on the Long-Term Effects of Micro-Level Unemployment on Children

Table S3 presents the identified articles investigating the effects of micro-level unemployment on children's long-term education and career outcomes.

Micro-Level Unemployment's Effect on Children's Post-Secondary Education

Regarding *participation in post-secondary education* as an outcome of children's exposure to micro-level unemployment, six studies (Brand & Thomas, 2014; Coelli, 2011; Hilger, 2016; Kalil & Wightman, 2011; Lindemann & Gangl, 2020; Pan & Ost, 2014) showed a significant negative effect.[10] Müller and colleagues (2017) showed a negative effect of children's exposure to micro-level unemployment on participation in post-secondary education in sons and mixed results in girls. One study (Anyadike-Danes & McVicar, 2005) showed no significant effect. In sum, seven studies show a negative effect of children's exposure to micro-level unemployment on participation in post-secondary education.

Concerning the *delay in participation in post-secondary education* as an outcome of children's exposure to micro-level unemployment, Kim and colleagues (2022) showed mixed results.

Regarding *graduation from post-secondary education* as an outcome of children's exposure to micro-level unemployment, Brand and Thomas (2014) showed a significant negative effect.

Micro-Level Unemployment's Effect on Adult Labor Market Outcomes

Investigating *adult employment* as an outcome of children's exposure to micro-level unemployment, Prakash and Kumar (2021) showed a significant negative effect of maternal, but not paternal, micro-level unemployment. Two studies (Fradkin et al., 2019; Pan & Ost, 2014) found no significant effect of children's exposure to micro-level unemployment on adult employment. Thus, the evidence regarding the effect of children's exposure to micro-level unemployment on adult employment is inconclusive.

Regarding *adult income* as an outcome of children's exposure to micro-level unemployment, two studies (Hilger, 2016; Oreopoulos et al., 2008) showed a significant negative effect, whereas two studies (Bratberg et al., 2007); Fradkin et al., 2019) showed either no significant effect or mixed results.

[10] Coelli (2011) also conducted age-specific analyses, with children being 16, 17, and 18 when exposed to micro-level unemployment, and showed mixed findings for each age-specific analysis.

Thus, the evidence regarding the effect of children's exposure to micro-level unemployment on adult income is inconclusive.

Concerning *adult unemployment* as an outcome of children's exposure to micro-level unemployment, Dvouletý and colleagues (2020) showed a positive effect. A two-country study (Winefield et al., 2005) found a significant effect in one country, whereas the effect was non-significant in the other. Doku and colleagues (2019) showed a significant positive effect of children's exposure to long-term unemployment on later adult unemployment, whereas the results concerning short-term unemployment were mixed. Five studies (Anyadike-Danes & McVicar, 2005; Ekhaugen, 2009; O'Neill & Sweetman, 1998; Pan & Ost, 2014; Tiggemann & Winefield, 1989) showed either no significant effect or mixed results regarding the link between children's exposure to micro-level unemployment and later adult unemployment. Three studies (A. E. Clark & Lepinteur, 2019; Morales, 2019; Mörk et al., 2020) found that maternal micro-level unemployment significantly positively affected adult unemployment, whereas paternal micro-level unemployment did not. Hérault and Kalb (2016) reported gender-concordant effects: Paternal (maternal) micro-level unemployment had a positive effect on adult unemployment in sons (daughters), whereas this effect was non-significant in daughters (sons). In sum, seven studies show a positive effect of children's exposure to micro-level unemployment on adult unemployment, with the gender of the unemployed parent as a potential boundary management.

Regarding *adult economic inactivity* as an outcome of children's exposure to micro-level unemployment, three studies (Anyadike-Danes & McVicar, 2005; Müller et al., 2017; Pan & Ost, 2014) showed either no significant effects or mixed results. Thus, the evidence for the effect of children's exposure to micro-level unemployment on later adult economic inactivity is inconclusive.

Concerning the *receipt of social assistance as an adult* as an outcome of children's exposure to micro-level unemployment, one study (Kauppinen et al., 2023) showed a positive effect, whereas another study (Oreopoulos et al., 2008) showed mixed results. Thus, the evidence for the effect of children's exposure to micro-level unemployment on the receipt of social assistance as an adult is inconclusive.

In sum, to answer RQ3, the results of our systematic review suggest that exposure to micro-level unemployment as a child has *detrimental* effects on several long-term education and career outcomes at adult age. Importantly, the evidence base was inconclusive or too small for most outcomes.

Evidence on the Long-Term Effects of Macro-Level Unemployment on Children

Table S4 presents the identified articles investigating the effects of macro-level unemployment on children's long-term education and career outcomes.

Macro-Level Unemployment's Effect on Children's Post-Secondary Education

Regarding *participation in post-secondary education* as an outcome of children's exposure to macro-level unemployment, three studies (Bozick, 2009; Contini et al., 2018; Dellas & Sakellaris, 2003) showed a significant positive effect, whereas two studies (Hershbein, 2012; Rivkin, 1995) presented mixed results. Sievertsen (2016) showed a positive effect of children's exposure to macro-level unemployment on participation in post-secondary education with one indicator but not the other. In sum, four studies show a positive effect of children's exposure to macro-level unemployment on participation in post-secondary education.

Concerning *(timely) graduation from post-secondary education* as an outcome of children's exposure to macro-level unemployment, Arellano-Bover (2022) found a significant positive effect, whereas four studies (Arenas & Malgouyres, 2018; Brattbakk & Wessel, 2013; Contini et al., 2018; Rao, 2016) showed a significant negative effect. Sievertsen (2016) showed both positive and negative effects of children's exposure to macro-level unemployment on graduation from post-secondary education. Thus, the evidence regarding the relationship between children and adolescents' exposure to macro-level unemployment and graduation from post-secondary education is inconclusive.

Macro-Level Unemployment's Effect on Adult Labor Market Outcomes

Regarding *adult employment* as an outcome of children's exposure to macro-level unemployment, one study (Rao, 2016) found a negative effect, whereas Hershbein (2012) reported mixed results. Thus, the evidence regarding the relationship between children's exposure to macro-level unemployment and adult employment is inconclusive.

Concerning *adult income* as an outcome of children's exposure to macro-level unemployment, two studies (Brattbakk & Wessel, 2013; Messacar et al., 2021) reported a negative effect, and two studies (Hershbein, 2012; Rao, 2016) mixed results. In sum, two studies show a negative effect of children's exposure to macro-level unemployment on adult income.

Regarding *adult unemployment* as an outcome of children's exposure to macro-level unemployment, Hérault and Kalb (2016) showed significant positive and non-significant effects when operationalizing macro-level unemployment with different indicators. Brattbakk and Wessel (2013) found mixed effects regarding the link between children's exposure to macro-level unemployment and adult unemployment. Thus, the evidence regarding the relationship between children's exposure to macro-level unemployment and adult unemployment is inconclusive.

Concerning *adult occupational prestige* as an outcome of children's exposure to macro-level unemployment, Arenas and Malgouyres (2018) showed significant positive and non-significant effects when operationalizing macro-level unemployment with different indicators.

Regarding the *receipt of social assistance as an adult* as an outcome of children's exposure to macro-level unemployment, Vartanian (1999) showed a non-significant effect.

In sum, to answer RQ4, the results of our systematic review suggest children's exposure to macro-level unemployment has *detrimental and beneficial* effects on one long-term education and career outcome, respectively. However, the evidence base was inconclusive or too small for most outcomes.

Discussion

Our narrative review synthesizes theoretical perspectives rooted in economics, sociology, and psychology to delineate major arguments regarding the link between unemployment and children's education and careers. Our systematic review summarizes primary studies investigating the effects of micro- and macro-level unemployment on children's short- and long-term education and career outcomes. With regard to RQ1, our systematic review points towards *detrimental effects* of micro-level unemployment on the short-term outcomes school performance, grade retention, school graduation, and school dropout, with the evidence base for the other outcomes school attendance, child labor/teenage labor force participation, [time in] NEET status, and participation in post-compulsory schooling being either too small (i.e., we reviewed either no or one study) or inconclusive.

Regarding RQ2, our systematic review shows a *beneficial effect* of macro-level unemployment on the short-term outcome participation in post-compulsory schooling, with the child's gender being a potential boundary condition (i.e., the effect may be stronger in boys). The evidence regarding the other relationships between macro-level unemployment and short-term education outcomes (see above) is either too small or inconclusive.

Concerning RQ3, our systematic review shows a *detrimental effect* of micro-level unemployment on the long-term outcome participation in post-secondary education. Furthermore, micro-level unemployment's effect on adult unemployment is also detrimental, with the parent's gender being a potential boundary condition (i.e., the effect of maternal micro-level unemployment seems stronger than paternal micro-level unemployment). The evidence with respect to the other long-term outcomes (i.e., delay in participation in post-secondary education, graduation from post-secondary education, adult employment, adult income, adult economic inactivity, adult occupational prestige, and receipt of social assistance as an adult) is either too small or inconclusive.

Turning to RQ4, our systematic review shows that macro-level unemployment has *both beneficial and detrimental effects* on children's long-term outcomes. We show evidence for macro-level unemployment's beneficial effect on participation in post-secondary education and detrimental effect on adult income, respectively. That is, the effects of micro- and macro-level unemployment on participation in post-secondary education are not homologous. The evidence regarding the relationship between macro-level unemployment and other long-term outcomes (see above) is either too small or inconclusive.

Theoretical Implications

Our review of the micro- and macro-level effects of unemployment on children's short-term education and long-term career outcomes has three important theoretical implications. First, we underline the relevance of differentiating between the micro- and macro-levels when examining unemployment's societal effects on children's education and careers. Participation in post-secondary education is the only outcome for which we could establish the directionality of unemployment effects on both levels, which were not homologous (Chen et al., 2005). Other relationships between micro- and macro-level unemployment and children's education and career outcomes may not be homologous either. We need evidence from primary research on many outcomes and on both levels of analysis. Thus, we call for future research to investigate these gaps (see below).

Second, we respond to calls for a multidisciplinary perspective on unemployment's consequences (see Klehe & van Hooft, 2018; Pramod & Ramachandran, 2023; Sinclair et al., 2024) by synthesizing theoretical arguments and empirical evidence from diverse disciplines such as economics, sociology, psychology, education sciences, and public health. Mostly, these disciplines conduct research in isolation. However, by integrating their research, we get a much richer understanding of unemployment's effects on children's education and careers, contribute to a more holistic theory-building, and attain a comprehensive evidence base. The usefulness of this approach becomes evident as we can show that macro-level unemployment has beneficial effects on short- and long-term outcomes. The economic perspective can explain these effects, but they do not align with the homophily or stress perspective. The economic perspective is not singularly sufficient either, as it cannot fully illuminate the gender effects shown in our results. All three perspectives attribute a high level of relevance to resources or capital. We argue that an integrated approach should investigate resources and capital more broadly and in concert. That is, financial resources,

cultural capital, and children's well-being should be jointly conceptualized as the driving forces of unemployment's effect on children's education and careers. Moreover, cultural and gendered beliefs regarding education and careers' instrumentality and opportunity costs should be highly important in this context. Theorizing informed by economics, sociology, *and* psychology is needed to fully understand the effects of unemployment on children's education and careers.

Third, the review results highlight the relevance of the life course approach (see Elder et al., 2003) when studying economic stress and its implications for life milestones in terms of education and careers (Debus & Unger, 2024; Graham & Sinclair, 2024). In line with Elder and colleagues (2003), we show that "[t]he life course of individuals is embedded and shaped by the historical times" (p. 12) and "[l]ives are lived interdependently" (p. 13). Both the historical period and one's life history play an important role in shaping adult outcomes (see Mayer, 2003). Only recently, business psychology has started to appreciate the relevance of adverse childhood experiences (including economic stressors) for work outcomes (see French et al., 2022; Graham & Sinclair, 2024). We consolidate the evidence from different fields and contribute to an enriched understanding of the phenomenon. This includes the time frame of unemployment's micro- and macro-level effects, which Sinclair and colleagues (2024) call for, as we can observe long-term career consequences well into adulthood.

Limitations and Directions for Future Research

Certainly, there are limitations associated with our study, which point toward relevant directions for future research. First, our systematic review did not retrieve evidence for many education and career outcomes of micro- and macro-level unemployment in children. Generally, we need more research to close these gaps.

Second, and potentially related to the first limitation, when developing our inclusion and exclusion criteria, we decided to exclude research disseminated as grey literature (i.e., theses, conference proceedings, government reports, or policy briefs; Adams et al., 2017; Paez, 2017) and research published in languages other than English. By not considering grey literature, we potentially limited the comprehensiveness of our findings (Haddaway et al., 2015) and may have introduced a publication bias to our study (Easterbrook et al., 1991). The same is true for our decision to include English-language research items only (see Egger et al., 1997). Furthermore, this language criterion may have limited the geographical scope of studies to be included in this systematic review. While a few studies stem from non-WEIRD countries, overrepresenting WEIRD countries may restrict the generalizability of our findings to WEIRD populations (see Henrich et al., 2010) with their specific social, economic, and cultural contexts. For example, social safety nets tend to be weaker in less industrialized and poorer countries (e.g., International Labour Organization, 2017). As such, the effects of micro-level unemployment on children may be stronger in non-WEIRD countries. More research is needed to close those gaps, particularly research from non-WEIRD countries, which should be included in future reviews. This helps us understand how the context modulates the effect of micro- and macro-level unemployment on children.

Third, while this review combined studies from diverging conceptual backgrounds (e.g., economics, educational sciences, sociology, psychology, and public health), our review focused on the effects of unemployment on children's education and career outcomes. For scope reasons, we did not consider other potentially relevant child outcomes, such as children's mental health, achievement orientation, cognitive skills, and self-efficacy. These factors can be crucial in understanding the full spectrum of how micro- and macro-level unemployment affects children, and they might serve as mediators that influence outcomes. For instance, micro-level unemployment can lead to reduced mental health in children, which in turn can affect their academic performance and career aspirations (Conger et al., 2010). Future research needs to transcend the silo thinking. A more holistic approach and a wider range of child outcomes would better capture the complex interplay of factors involved, enable a better understanding of the processes underlying the effects of micro- and macro-level unemployment on children's education and career outcomes, and address inconclusive findings. For example, while micro-level unemployment seems to impair children's school performance, the respective macro-level effects based on local or regional unemployment rates are inconclusive. Such an effect may be due to strain associated with micro-level unemployment (e.g., adverse social comparisons and stigma) losing its meaning and potential threat when it is a common shared experience in the community (Lee & Pescosolido, 2024). Communities might also respond to macro-level unemployment with counteractive measures that are not usually invested in individual students exposed to micro-level unemployment (e.g., schools investing in social workers).

Fourth, we could not systematically investigate boundary conditions that may explain the inconclusive results yielded by our systematic review. Research on the effects of micro- and macro-level unemployment on children's education and careers strongly focuses on direct effects, sidelining the investigation of moderating factors (and mediating mechanisms). However, the effects of micro- and macro-level unemployment, similar to other types of economic stressors, are bound to vary with factors on all levels (Sinclair et al., 2024).

More precisely, micro-level unemployment will likely not affect all children and families equally. For example, children who have already experienced more adversities in their past may react more negatively to parental unemployment due to stress sensitization (Hammen et al., 2000). Moreover, if the affected parent was the primary or sole wage earner of the family (which implies a greater loss of financial resources), children may be more negatively affected by micro-level unemployment (e.g., Maitoza, 2019). Similarly, the amount of private savings should be a relevant boundary condition in this context. How unemployed parents use their 'free' time, which is suddenly available, might qualify the effects of micro-level unemployment on children (for research showing that periods of career adversity in general and unemployment in particular may offer a chance to find meaningfulness in one's family, see Wehrle et al., 2024; Zikic & Richardson, 2007). Unemployed parents may experience discrimination because of other identities (e.g., ethnicity or disability status). The intersectionality perspective (Rosenthal, 2016) would assume that additional vulnerabilities exacerbate the detrimental effects of micro-level unemployment. On the country level, stronger social safety nets (Debus et al., 2012) and more generous unemployment benefits (Wanberg et al., 2020) might buffer the effects of micro-level unemployment on children's education and career outcomes. Generally, countries' social and labor market policies (Hoynes, 2016) are understudied in this context.

Turning to macro-level unemployment, future research should investigate how education policies may buffer or exacerbate effects on children's education and careers. Countries differ in terms of the level of participation in higher education and its costs. Thus, it is well conceivable that countries with elite education (i.e., a low percentage of the population enrolled in or graduated from higher education) and with high tuition fees might see stronger effects of macro-level unemployment on children's education and careers.

We also urge future research to simultaneously consider micro- and macro-level unemployment and to study interactions between them. Macro-level unemployment might strengthen or buffer the effects of micro-level unemployment (Probst et al., 2018). On the one hand, conservation of resources theory (Hobfoll et al., 2018) would predict that access to contextual resources, which is better during times of low macro-level unemployment, attenuates the effect of micro-level unemployment on children's education and careers. On the other hand, relative deprivation theory (Smith et al., 2012) would propose that low macro-level unemployment would deteriorate the parents' (and their children's) interpretation of micro-level unemployment, thus exacerbating the effect of micro-level unemployment on children's education and careers. Research investigating the interaction of micro- and macro-level unemployment should examine what micro-level processes mediate the macro-level effects of unemployment on children's education and careers. This way, we might be able to explain inconclusive findings (e.g., Gunes and Ural Marchand (2020) showed different indicators of macro-level unemployment to be differently related to school attendance).`

Fifth, we need systematic research on the role of time in studying the effects of micro- and macro-level unemployment on children's school and career trajectories. Exposure to unemployment may be more critical at certain points in a child's life. For instance, children's exposure to micro-level unemployment may be particularly destabilizing if it coincides with the onset of puberty (see Brix et al., 2019). Interestingly, much research on the effects of unemployment has focused on teenagers, particularly older teenagers. Yet, much understanding of social class, the status-ordering of occupations, and one's own likely place in such order is acquired much earlier (Gottfredson, 2005). This aspect is closely tied to the choice of relevant temporal lags between the moment of exposure to unemployment and the outcome measurement (Dormann & Griffin, 2015), an important consideration if one wants to uncover how fast micro-level unemployment becomes related to its outcomes (see Zapf et al., 1996). Interestingly, Jensen (2023) hints at micro-level unemployment's effects on children being stronger when the predictor and outcome are measured in close temporal proximity. Further, the onset of unemployment – quite often, albeit not always, in the form of a traumatic job loss event – is different from short- and long-term unemployment (see Doku et al., 2019), as progressing unemployment duration may disable parents to maintain their professional identities, as well as the economic and social living conditions that they can provide for their children (see Paul & Moser, 2009). Finally, sixth, we should test interventions (e.g., school counseling, cultural community building, smaller school classes; Finning et al., 2022; Mandel, 2016; Sirin, 2005) targeting children exposed to micro- and macro-level unemployment to reduce their negative impact on education and careers.

Practical Implications

We delineate practical implications for parental and professional caregivers, teachers, and principals, as well as decision-makers in politics and organizations, specifically dealing with micro-level unemployment, as we identified a range of detrimental short- and long-term education and career outcomes in children (as opposed to macro-level unemployment). First, *parental caregivers* who are exposed to micro-level unemployment might want to invest (time) resources in their children's education and careers to offset

the negative consequences of unemployment. Admittedly, this is easier said than done because unemployed parents will deal with job search and the negative consequences of unemployment (Paul & Moser, 2009; Wanberg, 2012) and are not in the best position to take on additional demands. Grandparents, neighbors, friends, or other 'as-if-family' relations (Bika & Frazer, 2021) might be best suited to help take on some of these additional demands (e.g., in parents' homework groups, youth clubs, community centers) to alleviate pressure on parents facing micro-level unemployment (and related stressors) and break the cycle of poor well-being and poor socioeconomic success being transmitted from unemployed parents to their children. Such extension of social support pays attention not only to the principle of linked lives and how "transitions in one person's life often entail transitions for other people as well" (Elder et al., 2003, p. 13), including their children, but also compensates for lost latent benefits of work (i.e., time structure, activity, collective purpose, status, and social contact; Jahoda, 1982).

Also, *professional caregivers* within the community (e.g., unemployment counselors and social workers) might help by investing extra effort in informing parents about the child- and education-related social services that they are eligible for – and how these can help their children. A handicap with much public social investment is, after all, a certain Matthew effect that prevents investments from reaching, particularly, those people who are most in need of them. At the same time, the middle and upper classes benefit instead. Bonoli and colleagues (2017) show that, across European countries, middle- and upper-income families are far more likely to employ such benefits than low-income families, a finding that continues across multiple forms of child- and education-related benefits up to post-secondary education.

Second, *teachers* and *principals* should be aware of the effects of micro- and macro-level unemployment on children and ensure that schools can, after all, be a fulfilling and liberating experience. School can be a safe haven or at least a temporary respite from the stressors experienced at home due to parental unemployment. Schools can compensate for many deficits that the loss of parental income may otherwise tear into children's nutrition (e.g., by offering free lunches), physical and educational activities (e.g., by offering afternoon classes in sports, arts, and STEMM clubs and peer tutoring) and mental-health counseling (e.g., by school psychologists and nurses), besides presenting an alternative social environment in which children may experience support, recognition, and other forms of personal encouragement from peers, teachers, and/or counselors. Particularly, initiatives like the "Whole Child Initiative" in the USA (ASCD, 2007) aim to ensure all children are healthy, safe, engaged in learning, supported by caring adults, and academically challenged. Inherent in this framework is the requirement to create a school climate and culture where students feel safe, engaged, and connected. Building on the Whole Child initiative, the "Whole School, Whole Community, Whole Child" (WSCC) framework goes even one step further and aims for a holistic approach to all children's mental, physical, and social health to promote optimal conditions for health and learning, arguing that no single sector can alone address the complexity of children's interdependent needs (Hunt et al., 2015). Slade and Griffith (2013) call for more cross-sector collaborations between schools, the health care system, community agencies, businesses, and politics to coordinate their services to children and families. Indeed, these collaborations appear helpful for enhancing students' academic achievement and health (e.g., Epstein & Sheldon, 2002; Garza et al., 2014; Jensen & Sonnemann, 2014; Lonsdale & Anderson, 2012; Teo et al., 2022).

Yet, not all school systems or individual schools will be able to provide such support or even be aware of the need to do so if unaware of parental unemployment. Indeed, school settings can also further impair and possibly traumatize children affected by parental unemployment, for example, when stress-induced student misbehavior is met not with constructive support but with disciplinary actions, possibly in the form of exclusionary approaches such as suspension or expulsion (e.g., Noltemeyer & Mcloughlin, 2010), or when inability to pay for one's school lunch results in shaming practices or the denial of meals, thus further aggravating affected children's distress (Cox & Harper, 2017).

We recommend that schools be alert when local plants close down and parents lose their jobs, to increase schooling and counseling efforts. Schools may partner with non-profit organizations (e.g., social housing providers, charities, social enterprises) to offer additional career-related training and mentoring to affected children. This collaborative approach "leverages the strengths of different organizations to provide holistic support" (Bika & Gaskell, 2024, p. 17) rather than relying single-handedly on schools and community investment in schools. Importantly, schools and their surrounding communities are intertwined with multiple factors likely influencing students' experiences and learning (Leithwood et al., 2004). That is, national and regional leadership, policies, school leaders' own professional learning experiences, and teachers' professional community and individual capacities interact with one another to influence school leaders' actions, the involvement and reactions of other stakeholder groups (e.g., unions, professional associations, business groups), and school and classroom conditions, all of which will impact student learning.

Third, *decision-makers in politics* aim to regulate the labor market to achieve a level of macro-level unemployment at which inflation is stable (i.e., the non-accelerating inflation rate of unemployment [NAIRU]; Ball & Mankiw, 2002). While the NAIRU is relatively low and changing

over time, it is not zero percent (e.g., between 1973 and 2022, the US NAIRU varied between 4.4 and 6.2%; Dubina, 2024). It may not be in the prime interest of political decision-makers to create jobs if the actual unemployment rate is below the NAIRU. However, we assert that they should nevertheless design policies to attenuate the effects of micro-level unemployment on children's education and careers. Schooling often comes with unaccounted costs, such as textbooks, stationery, uniforms, and class trips (see Kenny, 1999). State schools should cover expenses for children and adolescents whose parents cannot afford them. Moreover, students benefit effectively from means-tested student aid in their participation in post-secondary education (see Barr & Turner, 2013). However, bureaucratic hurdles reduce the uptake of these programs (Himmelrath, 2021) and should be minimized.

If the actual unemployment rate is above the NAIRU, active and passive labor market policies (ALMPs and PLMPs, respectively) are implemented to reach this sweet spot: Training programs and private sector incentive schemes are examples of ALMPs, whereas PLMPs are, for example, benefit payments (Kluve, 2010). With the rise of ALMPs and the work-first welfare state in Anglophone countries alongside the "international spread of conditionality in jobless benefits," the additional costs of such sanctions-centric policies and "infliction of financial instability" on the education and careers of children who are exposed to micro-level unemployment have not been accounted for (Schulte et al., 2018, p. 327, 336). Given that sanction-based ALMPs often deepen the scars that unemployment leaves when they lead to low-quality/temporary jobs (Fervers, 2021), while volunteering makes only a small, albeit positive, difference, the generosity of benefits is what seems to matter in alleviating the toll that unemployment takes on mental health and well-being (see Wanberg et al., 2020). The 'direct job creation' type of ALMP that guarantees government-subsidized jobs or apprenticeships to the unemployed person (demand management policy tool) might, thus, be an alternative that takes better account of the costly effects of micro-level unemployment on children than 'employment incentives' (supply management policy tool; see Vlandas, 2013), while it also reduces rising regional inequalities.

Last, *decision-makers in organizations* can and should support their (former) employees. The way in which people lose their jobs will impact both their own well-being and coping strategies following the job loss, as well as the response of survivors in the organization (see Datta et al., 2010). Thus, it is in the organization's own interest that decisions be handled as fairly as possible in regard to distributional, procedural, informational, and interactional considerations (see Richter et al., 2016). Moreover, organizations can offer tailored outplacement services, including career counseling, access to job training programs, and networking opportunities that help the newly unemployed cope successfully and thus reduce long-term adverse effects. Regarding lay-off-victims' children in particular, outplacement services may also include family assistance programs that mitigate disruptions in children's education caused by parental job loss (e.g., by subsidizing child education or after-school activities post-employment). Offering ongoing access to such resources post-layoff also showcases corporate social responsibility to maintain a positive employer branding.

The different recommendations discussed above point to the notion of resource caravans rooted in COR theory, suggesting that resources are interconnected and tend to build upon each other, forming a "caravan" where the possession of one resource increases the likelihood of acquiring others (Hobfoll et al., 2018). Thus, when parental and professional caregivers, teachers and principals, as well as decision-makers in politics and organizations, provide their form of tangible (e.g., material) or intangible (e.g., emotional) support to children hit by (micro-level) unemployment, this may propel the accumulation of further intangible resources (e.g., self-esteem, learning motivation) within these individuals, thus mitigating the deleterious impact of their new economic situation.

Conclusion

This review synthesizes three theoretical perspectives and empirical findings from different social science disciplines to provide evidence regarding the link between micro- and macro-level unemployment and children's short- and long-term education and career outcomes. The results show that micro-level unemployment has many detrimental effects on children's education and careers. In contrast, macro-level unemployment has both beneficial and detrimental consequences. From an academic perspective, these results underline the need for scholars to differentiate between the micro- and the macro-level if they want to research unemployment effects on children with greater sophistication, albeit without considering them as "competing developmental contexts" for children's life course (Sharkey & Elwert, 2011, p. 1973). From a practical perspective, these results underline the need to implement targeted interventions that consider the interlinked effects of micro- and macro-level unemployment through meso-level institutions to end the intergenerational transmission of social disadvantage due to unemployment. This is in tandem with the understanding that disadvantage is cumulative (Ferraro et al., 2009) and accrues through a multitude of economic and stress proliferation processes (Thoits, 2010) and reflects on what the presence of similar others does (see homophily perspective; McPherson et al., 2001).

We conclude by asking: What does 'unemployment' mean when work itself becomes casualized and precarious (Wiengarten et al., 2021) and gig work and zero-hour

contracts become more widespread? Such unemployment may generate not only persistent effects on children's education and career outcomes (as shown here) but also new complex lifestyles transmitted across different generations that go beyond the "either earning or unemployed" binary that currently dominates interventions for supporting those out of work (Bika et al., 2022). Explaining, measuring, and enabling social mobility is, thus, the grand theoretical, methodological, and, most importantly, practical challenge to deal with in the twenty-first century.

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Declarations

Competing interests The authors declare no competing interests.

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