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Introducing climate-related counterurbanisation: Individual adaptation or societal maladaptation?

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ABSTRACT

Climate disruption today and anticipated future climate breakdown are reshaping demographic and spatial processes, with profound consequences for societies across the globe. Specifically, migration can become a key strategy to attempt to respond to and cope with environmental change. This paper seeks to make sense of one type of migration, counterurbanisation, in this climate breakdown era. It provides conceptual clarity to what is termed 'climate-related counterurbanisation' vis-à-vis wider climate-induced migration and positions climate disruption within the counterurbanisation literature. Climate-related counterurbanisation is presented as a largely voluntary movement down the settlement hierarchy as a direct or indirect response to climate change, with positive representations of 'rurality' central to the relocation decision: individual adaptation. However, it is mediated by numerous geographically variegated and specific environmental, cultural, social and economic factors. Indeed, it may ultimately come to be seen more as maladaptation than adaptation. While moving from urban to rural may make sense at individual household level, such relocations can overall have much more negative impacts on host rural communities or the urban people left behind.

1. Introduction

Climate disruption and anticipated future climate breakdown is one of the most challenging scientific and political issues of our time. Besides engaging numerous scientists seeking to map, explain and hopefully find ways to counter it, the broad topic is also attracting an increasing number and diversity of social scientists. Among the latter, much attention is being given to emerging migrations that are being directly and urgently stimulated by this situation. There are, however, also less 'forced' migrations implicating climate breakdown, such as the ones explored in this paper.

Specifically, this paper seeks to 'make sense of counterurbanisation' (Mitchell, 2004) in an era of climate breakdown. As the paper is not empirical, its key contribution is to stir climate disruption into the rural mobility literature (i.e. scholarship that focuses on the socio-spatial impacts of various types of relocations in and across more rural contexts; Gkartzios & Halfacree, 2023), seeing it as another chapter of the unfolding 'counterurbanisation story' (Champion, 1998). Counterurbanisation is argued to be predominantly a voluntary movement (inclusive of reactionary and anticipatory mobility) down the settlement hierarchy, with 'rurality' central to the relocation decision. Critically, as with this type of migration overall, it is mediated by geographically variegated and specific environmental, cultural, social and economic factors. These include specific climate risks, pre-existing social or family networks, legal and property rights, transfer of assets, labour market conditions, and planning regulations or property markets in potential 'host' locations. In short, a complex interplay of demand- and supply-side factors underpin counterurbanisation as a response to climate breakdown.

The paper is conceptual but draws on recent research that has examined counterurbanisation in the context of crisis, where the rural, however defined across global typologies and scales, is often perceived as a 'refuge'. The climate breakdown crisis, it is argued, prompts such more-or-less urgent urban-to-rural movements. Throughout, however, it must be recognised that such counterurbanisation will be a privileged form of adaptation to climate disruption, reflecting its households'

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agency. It will often reflect pre-existing socio-spatial inequalities, not least through those with greater financial resources making relocation decisions out of reach for many others. Furthermore, while moving from urban to rural may make sense for individual households, such relocations can have negative impacts on host communities, as is noted generally for counterurbanisation. It may also hamper society-wide efforts to adapt, compound further climate risks or even impede mitigation actions. Climate-related counterurbanisation may thus ultimately be more suggestive of societal maladaptation than adaptation.

The rest of the paper is structured as follows. First, it provides a brief overview of the wider literature on how the climate breakdown is (re) shaping migration across the globe. This literature generally focuses on mass migration and displacement of vulnerable groups. Second, a summary of counterurbanisation research that has focused on crisis contexts is given. Third, novel climate-related counterurbanisation is introduced, defined as predominantly an individual (family) adaptation strategy in response to climate disruption. Four sub-types are proposed. However, the section also raises some more negative likely consequences from such relocations, suggesting it may even be seen overall as maladaptation. A conclusion then reiterates how the 'counterurbanisation story' clearly still has more to tell circa 2023.

2. Climate breakdown and population movements

Scientifically, evidence regarding human-induced warming of the climate system is unequivocal (IPCC, 2014). A complex, dynamic process of unprecedented environmental change has reached severe levels, inaugurating a new age of environmental breakdown (NESC, 2019). Based on analysis of Global Climate Models, anticipated climate change not only means changes in global average temperatures but also to the frequency and intensity of extreme weather and climate events such as severe flooding, high precipitation events and storms, droughts, heat/-cold waves, and threats posed by sea level rise. Yet, in spite of overwhelming scientific consensus, translating this knowledge into responsive action remains an enduring global societal challenge. As Buckley and Betsill (2003) observe, questions as to **what** should be done, by **whom**, and **when**, remain highly contested.

The potentially catastrophic global impacts of climate disruption include widespread displacement of people, as parts of the globe become less habitable due to excessive heat, drought or inundation from sea level rise. For example, even under a moderate scenario consistent with 2 °C warming, Kulp and Strauss (2019: 2–3) estimate that 'sea levels projected by 2050 are high enough to threaten land currently home to a total of 150 million people to a future permanently below the high tide line … [and] a total of 360 million people are [currently living] on land threatened by annual flood events in 2100'. Under a high emissions scenario, up to 630 million people currently live on land below projected annual flood levels for 2100, with 70 per cent of the world population currently living on vulnerable land located in just eight Asian countries (Kulp & Strauss, 2019). Adger et al. (2020) further note that 9.8 million people were reported displaced by disasters in the first half of 2020 and 280,000 people displaced during early September 2020 from wildfires in the western United States alone. Future climate change impacts will cause greater temporary displacement and alter permanent migration flows. All accounts indicate a complex interaction of political and ethical issues that require social science to identify, understand and provide informed debate. There are many existential challenges for humanity posed by climate change, which are discussed also in the context of an increasing 'hazardousness of place' (Black et al., 2011).

Besides direct displacement, environmental hazards related to climate change have the potential to cause enormous damage to the built environment and other critical physical and social infrastructure, imposing significant social and financial costs (O'Neill & Scott, 2011). Across Europe, impacts of a warming climate and more extreme weather events are already being experienced. A report by the European Environment Agency (2010) highlighted that extreme temperature across Europe between 1998 and 2009 caused over 77,000 fatalities, while flooding and storms were the costliest hazards, accounting for €96 billion in losses. Climate change has led to detectable changes in extreme weather, with increasing exposure of people and the built environment to climate disruption (*disaster damages*) leading to increased economic losses (*disaster losses*) (EEA (European Environment Agency), 2010). Reflecting such dynamics, the European Environment Agency (EEA, 2016, p. 16) noted that 'climate change is not isolated; it is strongly intertwined with socio-economic factors that make it a systemic challenge'. In relation to the hazardousness of place, this involves real estate markets, property rights, residential consumer choices and mobilities, and management and regulation of land-use and urbanization. Vulnerability to sea-level rise, fluvial flooding, heat stress and wildfires, increase not only through a changing climate but also via continued urban development in inappropriate locations (e.g. flood plains) or poor city design (e.g. intensifying urban heat island effects).

In this frequently challenging everyday context, migration can be a key strategy that seeks to cope with environmental change (Adams & Adger, 2013; Adger et al., 2015). This includes international and intranational movements, forced and voluntary changes, and temporary and long-term relocations. In recent years, a growing body of literature has captured these changes, examples of which are presented in Table 1. As Adger et al. (2020) highlight, climate change is, in effect, reshaping the comparative advantages of regions, notably making some places less productive and liveable. When conditions and prospects become intolerable, people move *en masse* for opportunity and for survival, with mass migration, climate refugees and managed retreats all capturing both academic and popular attention. However, away from such mass flows, more voluntaristic and often individual (family) level relocation decisions and movement affected by climate change should also be recognised by researchers. One expression of such 'voluntary' migration is climate change inspired counterurbanisation.

Table 1
Climate change mobilities.

Types of climate change mobilities	Examples
Survival migration	Direct displacement from climate change as a last resort following specific event(s) (e.g. extreme weather event) or increased hazardousness (e.g. more frequent flooding or drought) (Adger et al., 2020).
Population displacement	Climate disruption as a driver of state/regional insecurity leading to *population displacement* (both voluntary and involuntary). Often related to resource scarcity and competition (e.g. diminishing water resources; Abel et al., 2019), which may in turn overlap with pre-existing ethnic or social-economic 'fault lines' (Reuveny, 2007).
State-led resettlement	Involuntary resettlement of communities vulnerable to climate change impacts (Azfa et al., 2022), often carried out in low- and mid-income countries as a so-called 'development measure'.
Seeking a new livelihood	Perception of future climate change as a trigger factor linked to seeking a new livelihood (Ajibade et al., 2020). Particularly important in resource dependent communities, such as farming or fishing communities, whose livelihoods may be directly threatened by climate disruption.
Climate refugees	Defined by Berchin et al. (2017: 147) as 'any person who has been forced to leave their home, or their country, due to the effects of severe climate events, being forced to rebuild their lives in other places'. The vast majority are displaced within their own country (Cundill et al., 2021; IFRC, 2021) but, whilst far fewer, those moving across borders often face a critical legal protection gap as they seek asylum.
State-led managed retreat	State-led managed relocation of people or entire communities in the face of risk (Siders, 2019; Tubridy et al., 2022). For Ajibade et al. (2020), this differs from other forms of climate migration in that it is property (rather than people) focused, involves legal protections and often includes compensation for displaced persons.

3. Counterurbanisation as a response to climate breakdown

Since conceptualization of the phenomenon in the 1970s in the US as a new and emerging trend (Berry, 1976), there have been five decades of research on counterurbanisation, the importance of which is immediately evidenced in this present special issue (Gkartzios & Halfacree, 2023). Various approaches, taxonomies and methodologies have been used to research it, evidenced in collections and reviews such as Champion (1989), Boyle and Halfacree (1998), Mitchell (2004), Halfacree (2008) and Gkartzios (2013). All present counterurbanisation as having so many different facets, causes, agents, scales, cycles, speeds and so on that it is effectively impossible to summarise in a single global narrative (McManus, 2022) beyond the idea that it expresses 'pro-rural' relocation (Halfacree & Rivera, 2012). Counterurbanisation (and, broader, rural mobility) is 'messy' (Stockdale, 2016), it is a 'story' (Champion, 1998) with many chapters, it is both material and symbolic (Dilley et al., 2022). Often attached to positive representations of the countryside (e.g. to a 'rural idyll' or 'refuge', discussed below), research has now gone on to link it also to more-than-representational aspects of rural living, such as feelings of wellbeing (Phillips et al., 2023) and affective dimensions of rurality (Halfacree & Rivera, 2012).

In the context of rural restructuring, counterurbanisation can be seen as both blessing and anathema; it can be characterised as both chronic (i.e. prolonged) and ephemeral (i.e. temporary); it can be associated with both privilege and exclusion; and it can both be idealised and demonised. However, a common thread within all of these 'counterurbanisation stories' is the countryside positioned against crisis phenomena (sometimes discussed as *permacrisis*; Shucksmith, 2023). Specifically, three types of crisis have been associated with counter-urban mobility:

- *Economic crisis.* The European financial crisis of 2008/09 was sometimes represented as an 'urban crisis' (Gkartzios, 2013) and for this reason, inter alia, many rural places (particularly in southern Europe) experienced a spatially selective counterurbanisation boost (Anastasiou & Duquenne, 2020; Figueiredo et al., 2020; Hilmi & Burbi, 2016; Oliva & Rivera, 2019). In Greece this has been discussed as crisis-led counterurbanisation (Gkartzios, 2013), with research demonstrating that young and unemployed urban people, in particular, sought rural areas as spaces of refuge (Anthopoulou et al., 2017; Remoundou et al., 2016). Characteristic of this counterurbanisation chapter was the return migrant being supported by extended family and other social networks (Gkartzios, 2013) in a 'rural idyll' rooted not in pastoralism and pre-industrial romanticism but in an alternative to high urban unemployment and a generally deteriorated urban lifestyle (Gkartzios, 2018; Gkartzios et al., 2017). Such relocations can form part of a range of heterogenous counter-urban mobilities (including back-to-the-land movements) contributing to aspects of local rural resilience (Papadopoulos et al., 2019) by supporting the growth of sustainable food systems (Benessaiah, 2021), for example.
- *Demographic crisis.* Many rural places continue to experience severe depopulation and counterurbanisation can appear as an obvious 'fix' to such demographic shrinkage. For example, Japan is characterised by an acute demographic crisis especially pronounced in the countryside, with many villages discussed as literally 'dying' (Economist, 2019; Ji & Fukamachi, 2017; Li et al., 2023; Wang, 2019). In this context, policy makers have supported the idea of a 'return to rural living' as a way to sustain rural places, an 'idealised counterurbanisation' (Dilley et al., 2022). A similar response has also been observed in the northern Netherlands (Bock & Haartsen, 2021). In practice in Japan, although counterurbanisation is observed (Economist, 2018; Klien, 2020), it is relatively limited and there is little evidence to suggest that policies are consolidating population reversal, not least because they are disjointed strategically (see also Atterton et al., 2022; Dilley et al., 2022). While this highlights the need to address rural depopulation in a systemic fashion (across rural, urban and regional dimensions) and support local community resilience initiatives, counterurbanisation still remains a prominent focus within this crisis context.
- *Health crisis.* The COVID-19 pandemic has reawakened research interest in counterurbanisation and its implications, not least because of many increased mobilities towards rural areas (Argent & Plummer, 2022; Halfacree, 2023; McManus, 2022). Somewhat paradoxically given the mobility restrictions placed throughout the pandemic, the countryside as a safer and healthier place to be, possibly while working remotely (e.g. Denham, 2021), came through strongly in this new crisis context. In addition, however, consequent 'pandemic mobilities' (Gallent et al., 2023) reflected not only potential mobility preferences but also entrenched socio-spatial inequalities (Scott, 2020). More affluent households were better able to mobilise financial or existing housing resources, such as González-Leonardo et al. (2022) reporting that internal migration to rural areas in Spain increased especially strongly in areas with high levels of second/holiday homes. Tammaru et al. (2023) also noted high pandemic counterurbanisation rates of wealthier residents in Estonia, although they also highlighted a positive impact on local economies rather than the usual damaging gentrification and displacement effects. Similar trends were observed in Sweden (Vogiazides & Kawalerowicz, 2022; Åberg & Tondelli, 2021). Although UK research by Champion (2022) observes that the pro-counterurban impact of the pandemic has been overemphasized by the media (depending also on how counterurbanisation is construed and measured), longer-term associations between counterurbanisation and crisis are again likely to be retained overall.

In spite of these albeit cautious and nuanced associations between different crises and expressions of counterurbanisation, a glaring absence within this work thus far are efforts to interlink climate breakdown with a pro-rural move. As already noted, climate change has the potential to be a key driver of future mobility (and rural mobility specifically) decisions, so its potential link to counterurban migration expressions clearly merits scrutiny.

4. Counterurbanisation as individual (mal)adaptation

4.1. Establishing climate change counterurbanisation

Climate change impacts are increasingly affecting individual lives, exposing households to a range of climate-related risks. Relocation from an urban to rural environment has the potential to reduce vulnerability to some aspects of these risks or at least the perception of such vulnerability. For example, climate change and the urban heat island effect are increasing the number of dangerously hot days in cities worldwide (Keith et al., 2019). Increased risk of heat stress leads to extreme discomfort, increased morbidity and mortality rates, and is particularly impactful on vulnerable groups such as older people (Munro et al., 2020). These challenges are heightened in urban areas due to high levels of artificial surface, the materials used in buildings, and anthropogenic heat waste, resulting in the urban heat island effect of considerably higher temperatures in cities compared to rural areas (Keith et al., 2019). As the climate progressively warms, there will be a rise in heat related mortality as heatwave incidence increases. During the summer of 2003, for example, over 70,000 deaths in Europe were attributed to extreme heat (Keith & Meerow, 2022; also Desmond et al., 2017). Urban heat stress may also be compounded by poor building design, particularly in high-density cities (less greenspace) (Scott & O'Neill, 2022). High temperatures within buildings in the summer also contribute to overheating health risks, higher risk of heat-related mortality and more broadly affect comfort (de Wilde & Coley, 2012; Mavrogianni et al., 2011). In this whole context, the attraction of the rural is clear, with properties tending to be larger with greater potential for ventilation,

greater greenspace access and lower ambient air temperatures than nearby cities (Keith & Meerow, 2022).

Wider consequences from global heating may also make cities less habitable. For example, while rural and urban places may be both vulnerable to fluvial flooding, urban areas can be more exposed to such events following heavy precipitation, especially in areas with inadequate or poorly maintained drainage systems, while heavily populated centres located at coastal or river locations may become more at risk to floods. Not only may flooding cause property damage and temporary displacement, but exposure to recurrent risks is related to poor mental health outcomes (Fernandez et al., 2015; Lamond et al., 2015; Munro et al., 2017), a further possible trigger for relocation. Cities under climate strain may also face rising critical infrastructure problems. These include disruptions to energy supply due to surging demand for electricity for air conditioning, household water supply and urban transportation networks following extreme weather events or prolonged freezing conditions. Furthermore, urban properties are often harder to adapt to climate change due to site or building constraints, while renters (higher levels in urban areas) may have less influence on timely building repairs or adaptations (Scott et al., 2021). Climate change is also likely to increase costs of living, such as rising energy costs or increased food prices due to supply disruption (Munro et al., 2020). Within all this context, more affordable rural properties may be seen to offset climate disruption.

Multiple factors often combine to trigger mobility (Ajibade et al., 2020), and climate-related risks might be part of a wide 'bundle' of factors encouraging urban-to-rural relocation, perhaps the 'final straw' that breaks the 'camel's back' of urban living. Recognising the motivations that underpin mobility decisions may thus be a complex, multi-faceted and heterogenous task (Halfacree & Boyle, 1993). However, four sub-types of climate-related counterurbanisation are suggested: (i) Displaced, (ii) Wellbeing, (iii) Protective, and (iv) Lifestyle change. How these sub-types relate to diverse motivations are outlined in Table 2 and will further overlap with better known factors influencing counterurbanisation, discussed widely in the aforementioned counterurbanisation literature.

Table 2
Climate-related counterurbanisation sub-types.

Climate-related counterurbanisation sub-types	Motivations
Displaced	Primarily property-related factors prompting a reactionary or anticipatory relocation from urban to rural areas to reduce exposure to climate change risks e.g. from recurrent property damage or through inability to adapt current property to risk.
Wellbeing	Relocations motivated by health and wellbeing concerns. These include reducing risk to heat stress, a psychological coping strategy in the face of disruption or perceived risk, and the allure of a rural refuge. It may be a permanent move or temporary relocation e.g. to escape extreme summer urban temperatures. A 'return to roots' (domestically or internationally) may also be involved, seeking to connect to psychological support networks for coping with risks or financial burdens.
Protective	Short-term temporary moves during or following an adverse event, possibly to a rural second home or short-term rental (e.g. through Airbnb style platforms), both domestic or overseas. This parallels COVID-19's pandemic mobilities.
Lifestyle change	A desire for an alternative lifestyle to adapt to climate change similar to 'back-to-land' type movements. This might include a desire to be more self-sufficient and involve making long term changes to ways of living (e.g. growing own food, domestic energy generation). May also be motivated by financial considerations in the wake of anticipated future costs i.e. moving to reduce household costs, release equity to cope with cost of living, or obtain cheaper housing. Financial savings may enable households to take longer term actions.

4.2. Capacity to act: experience, characteristics and privileged mobility

As widely recognised in the literature (e.g. Hamin & Gurran, 2009; Rumbach & Kudva, 2011), climate change impacts on households and individuals are uneven and experienced very differently across different places and household characteristics. This is equally the case for climate change counterurbanisation.

Key here, first, is past experience of risk. Households or individuals living in different geographic locations encounter different types and levels of risks. Resultant experience is one of the most critical factors in motivating adaptive responses to different dimensions of climate vulnerability, such as flood risk (Grahn & Jaldell, 2019; Kuhlicke et al., 2020) and sea-level rise and erosion (Koerth et al., 2013). Within this, lack of trust or confidence in political institutions adequately to prepare or respond to such risk can motivate individual adaptive household actions (Scott and O'Neill, 2022), which also vary spatially.

Besides past experience, however, a range of household characteristics perform a critical role in framing counterurbanisation as a potential response to climate change, illustrated in Fig. 1. First, households most vulnerable to heat stress (e.g. older people, people with pre-existing breathing difficulties) may be more motivated to 'escape' the urban heat island. Second, household resources, not least monetary, centrally underpins any capacity to act, differentially translating preference into actual moves. Simply put, more affluent households will have a wider array of options through the housing market to exercise a counterurbanisation preference. Third is the importance of household connections in the rural destination. For example, 'return-to-roots' counterurbanisers often have family and social connections within rural places and potential housing options (Ní Laoire, 2007; Scott et al., 2017), and may also be given preferential treatment for self-build, demonstrated in Ireland (Gkartzios & Scott, 2012) and Greece (Gkartzios, 2013; Gkartzios et al., 2017). Job type for working migrants is a fourth key factor. In particular, workers employed in specific office-based sectors (e.g., financial services, administration, IT, human resources etc.) may be able to work remotely and thus have greater flexibility to move to rural locations while retaining employment.

Overall, therefore, counterurbanisation as adaptation to climate change will be a selective and privileged form of adaptation, possibly even reinforcing wider socio-economic inequalities. There are clear parallels here with pandemic mobilities observed during COVID-19, highlighted in the previous section. For example, UK research (Gallent & Hamiduddin, 2021; Gallent & Madeddu, 2021) illustrates how affluent households made increased use of pre-existing rural second home properties to avoid high density locations with increased risk of infection or sought expensive rural properties to take advantage of new working from home opportunities. These adaptive or coping behaviours were not available to households with less financial resources, first time buyers, renters, or older households reliant on nearby family or friends for care.

4.3. Counterurbanisation as climate change maladaptation

As already noted, there is plenty of literature regarding the frequently negative consequences of counterurbanisation (i.e. gentrification, erosion of social and cultural place-based capital, exploitation of local resources, service provision unable to meet demographic changes, etc.; see also Gkartzios et al., 2022). In this context, questions are also raised as to how successful overall counterurbanisation may be in the long term for adapting to climate change. In particular, as Adger et al. (2015) highlight, while actions can work for the adaptive agents, they may produce negative externalities and spatial spillovers. These may

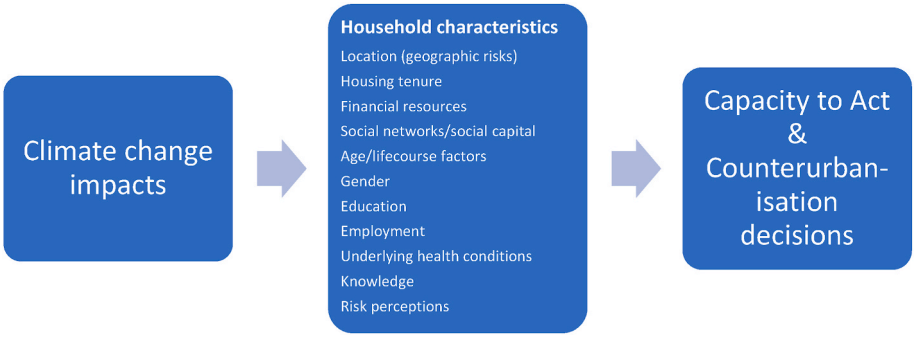

Fig. 1. Household characteristics framing capacity to act in climate-related counterurbanisation.

potentially initiate or increase negative impacts for others, reduce their capacity to adapt or lead to further environmental damage. For example, increased use of air-conditioning to cool homes may lead to a surge in energy demand and increased carbon emissions (Woods et al., 2022). In sum, climate-related counterurbanisation may thus come to be considered overall as **mal**adaptation, generating benefits for households directly involved but negative externalities for others.

A first example of potential maladaptation relates to responses to warmer summers exacerbated in cities through the urban heat island effect. Affluent households could adapt to these effects through purchasing a rural second home or moving long term to a rural location with lower temperatures. However, these practices are likely to reinforce the well-known displacement of local rural people around gentrification processes (Halfacree, 2023). For example, in many parts of the UK, the dual pressures of restrictive housing supply and increased demand from commuters, retirees, second home owners and those buying holiday homes (Gallent & Tewdwr-Jones, 2001; Shucksmith, 1981, 1990) have resulted in now well-noted acute affordability issues and inadequate need-defined supply for local communities (Best & Shucksmith, 2006). These trends can be further reinforced in local planning arenas, where newcomer and middle-class interests mobilise to resist further development (Scott et al., 2011). All of these processes may well be further reinforced through climate-related counterurbanisation.

A second example highlighting ultimate maladaptation relates to the potential for a move towards more dispersed living patterns, typical in rural localities, leading to greater car dependency to access services, education and labour markets, with associated carbon emissions reinforcing and accelerating climate change. Again, counterurbanisers may adapt successfully at an individual level but their new living patterns prompt maladaptation. There may also be fewer opportunities for active travel due to greater travel distances required in rural places, further consolidated by a reduction in public transport provision due to lower demand and limited provision of e-vehicle infrastructure.

Thirdly, rising demand for housing in peri-urban and rural locations may compound or accelerate the hazardousness of place even within 'host' rural localities. An example is the increasing risk of wildfires, which over the last decade have caused devastating property losses across the world, including Australia, southern Europe and California (Kramer et al., 2019). Increasing drought conditions, warmer weather and record-breaking heatwaves have prompted these fires (Schoen & McDonald, 2019) but vulnerability is not simply due to a changing climate. In addition, it may be consolidated by development patterns, particularly in amenity rich peri-urban and rural areas, reflected in the rise of major bushfires on the ex-urban margins of Sydney, Canberra, and Melbourne in Australia burning over a million hectares of woodland and costing more than 200 lives and 4000 homes (Sharples et al., 2016). Likewise, on the US west coast, 25 per cent of California's population (11 million people) now live in fire prone areas (Berger & Susskind, 2018), often affluent communities in semi-rural locations. The wildland-urban interface, where wildfires are most prevalent, has witnessed rapid development (Radeloff et al., 2018), putting more lives and houses at risk. Land-use patterns and regulation and human-induced climate disruption are frequently combining to increase vulnerability (Syphard et al., 2019) – a maladaptative paradox of leaving the city due to perceived climate risks increasing the vulnerability of the incomers' new environment.

Increased occurrence of wildfires, as well as conflicts about their management in rural areas (see, for example, Carroll et al., 2006; Paveglio et al., 2015), can also run contrary to the decision to counterurbanise (in particular to fire-prone rural locations). To our knowledge there has been no research exploring links between wildfires and counterurbanisation specifically (see, however, literature on why residents continue to live in high-fire-risk settlements, Christ et al., 2023). Nawrotzki et al. (2014) report that after a major fire in Colorado, US, there were no significant differences between those migrating after the fire ('fire migrants') and those not in an affected area, although they also observe increased levels of wildfire risk perception amongst residents in those areas, which could impact on future mobility patterns. Winkler and Rouleau (2021) also report reduced internal migration in the US in areas impacted by fires or extreme heat, especially in areas known for their environmental amenities. These findings suggest that climate change and wildfires may diversify the social construction of the countryside (Halfacree, 1993), challenging the idyllic imaginary of rurality through representing it as an increasingly hazardous place, raising new geographies and politics for climate-related counterurbanisation.

Finally, climate-related counterurbanisation has the potential to diminish adaptive capacity in the urban areas being left behind. This is particularly the case if more affluent residents leaving the city diminishes the financial capital (e.g. loss of local tax revenue) and political capital available to adapt to climate risks. Further emphasising the consequences of climate-related counterurbanisation's selectivity, while more affluent individuals thus have the capacity and resources to take adaptive actions, this may reinforce vulnerability and environmental injustice for the less affluent and reduce an urban municipality's capacity to act to support such people.

4.4. *Counterurbanisation and climate justice*

Bringing together issues surrounding the household characteristics that underpin the (privileged) capacity to act and the potential for maladaptation, climate-related counterurbanisation may also be informed by and contribute to debates on climate justice. As Porter (2020) highlights, climate justice is a framework that examines the intersection between climate change and the way social inequalities are experienced. While climate justice debates initially emerged global scale issues, particularly linking human rights, uneven development, and the burden of climate costs falling on the poorest nations, Porter notes how climate justice has widened in its application to examine spatial justice at a wide range of spatial scales and intergenerational justice debates. Moreover, Schlosberg and Collins (2014) highlight the utility of an environmental justice perspective in examining the broad range of

inequities created or exacerbated by climate change. These can be seen at the level of the individual (health, for example), community (livelihoods, culture), and political structure (governance transparency). Climate-related counterurbanisation may also be framed in these terms. For example, counterurbanisation as an individual response to climate disruption has the potential to reinforce neoliberal discourses which seek to individualise climate action rather than prompt collective action. Exacerbating rural gentrification or rural housing affordability concerns through climate-related counterurbanisation (drawing on Anguelovski & Pellow, 2020) has the potential to marginalise, invisiblise, and displace more vulnerable residents. Examining the intersection of rural spatial justice (see Woods, 2023) and climate-related counterurbanisation should be a rich vein of research as well as an axis for advocacy and community activism.

5. Conclusion: time for a new counterurbanisation chapter

Five decades since Berry's (1976) seminal introduction, counterurbanisation scholarship remains 'messy', as Stockdale (2016) has reminded us. One expression of this messiness is how the migration expression has been associated with a range of 'disturbances' as well as 'opportunities', with a wide diversity of outcomes coming from such connections. Nonetheless, the present paper has argued that still another chapter to the 'counterurbanisation story' (Champion, 1989) needs writing, originating in our ongoing era of climate breakdown. In short, climate-related counterurbanisation constitutes a form of adaptative response to climate change risks. Research must acknowledge it as a largely individual and voluntaristic counterurbanisation, distinguishing it from direct displacement following a climate-related disaster or state-led managed retreat. It features representations of 'rurality' as once again central to the relocation decision (Halfacree, 1993, 1994), resonating with existing research where the rural is represented as a refuge in times of crisis, a safe haven related to family, social ties, property and/or financial investment, or as an opportunity for lifestyle change.

Climate-related counterurbanisation is unlikely to be an immediate mass movement, however, it might result from a specific event or disaster. On the one hand, climate breakdown's influence is likely to be more of a 'slow burn', with climate factors more indirect or intersecting with and consolidating others. For example, the longstanding amenity-retirement trend for affluent Americans to retire to Florida for a more favourable climate and cost of living (Serow, 2003) or the more recent trend of elderly British people relocating to Spain (Hall & Hardill, 2016) may be heightened by climate breakdown's raising of concerns for a group vulnerable to more extreme temperatures. On the other hand, counterurbanisation in response to climate breakdown is also not an option for all. Research must explore which groups and individuals are more likely to seek an urban-to-rural move, their motivations, their ability to act on such desires, and their experiences of conditions at the destination which might differ from original expectations. To begin to explore this, this conceptual paper introduced a four-fold taxonomy, called for further contributions towards a research conversation about just how selective and political climate-related counterurbanisation is becoming, which includes which types of rurality are more suited to such relocations (for example, areas with lower risk of wildfires). Furthermore, and building on this need to acknowledge selectivity, the paper argued that climate-related counterurbanisation may ultimately come to express maladaptation as much as adaptation to climate breakdown, not least through its potential to reinforce existing socio-spatial inequalities. In sum, counterurbanisation in the wake of ongoing climate disruption is a very timely, fertile and necessary research topic today.

Credit authorship contribution statement

Mark Scott, Menelaos Gkartzios and Keith Halfacree contributed equally in: Conceptualization, Writing - Original draft, Writing - Review & Editing, Investigation, Visualization.

Declaration of competing interest

The authors declared that they have no conflicts of interest to this work.

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