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Between or Beyond Bicycles and Cars? Navigating E-Cargo Bike Citizenship in the Transition to Sustainable Urban Mobility

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ABSTRACT

E-cargo bikes have gained academic and policy interest for their potential to replace car trips in cities. Like bicycles, they require pedaling, produce few emissions, and use cycling infrastructure, while offering capacity for transporting passengers and goods, like cars. Yet, additionally to mode and infrastructure changes, shifts in identities, culture and citizenships, are needed to challenge the dominance of automobility. This article introduces the concept of 'e-cargo bike citizenship' as a cultural identity shaped through e-cargo cycling practices to understand how they challenge both automobility and vélomobility in transitions to sustainable urban mobility. We analysed 108 interviews with 49 e-cargo bike users in Brighton, Leeds, and Oxford, conducted during a trial loan project. Results indicate that e-cargo bike citizenship broadens cycling identities in contexts where cycling has negative cultural associations. Additionally, e-cargo bike citizenship is often family citizenship, contrasting with individualised cycling, and contesting the norm of motorised family mobility. E-cargo cycling also enables interactions 'inside' between rider and passenger(s), reminiscent of automobile citizenship – although typically with less comfort and varying depending on the type of cargo bike, while being connected 'outside' to local communities, reinforcing a sense of belonging that echoes cycling citizenship. Our findings contribute to geography and mobilities research by considering e-cargo bikes' hybridity, beyond cars and bicycles, and highlight the significance of citizenships in urban mobility transitions, focusing on domestic e-cargo bikes, contrasting with previous studies' last-mile logistics focus.

1. Introduction

We urgently need to transition to more sustainable mobilities in cities. While reducing greenhouse gas emissions through mode shift is crucial, mobility transitions also involve challenging the car-centric system more broadly, called the system of automobility (Urry, 2004). The entrenched system of automobility, referred to thereafter as automobility, composed of the technologies, infrastructures, institutions and cultures surrounding the car, dominates modern societies and marginalises more sustainable forms of mobility (Böhm et al., 2006; Sheller & Urry, 2000). At the same time, vélomobility, the systemic structures that support cycling, offers an alternative, yet remains subordinate to automobility (Cox, 2019; Horton et al., 2007; Watson, 2013).

Because the hegemony of automobility is deeply rooted in our cultures (Sheller & Urry, 2000; Urry, 2004), we need a shift in identities, culture and, we argue, citizenships, for other mobility systems such as vélomobility to be more prominent and thus transition away from automobility. Spanning beyond the political and legal meaning usually bound to nation-state membership, citizenship is also performed and constructed in space through mundane practices, including mobilities. In this article, we formulate the novel concept of 'e-cargo bike citizenship', as a cultural identity involving a feeling of belonging to an imagined community and developing through e-cargo cycling practices.

In the context of shifting to more sustainable and active forms of urban transportation, electric-assist cargo bikes, commonly referred to as e-cargo bikes, have gained currency in academic and policy discussions. While much of the attention has been on their potential to replace vans for urban last-mile logistics (Blazejewski et al., 2020; Cairns & Sloman, 2019; Narayanan et al., 2022), they also have domestic applications (Bissel & Becker, 2024; Carracedo & Mostofi, 2022; Marincek

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et al., 2024), which is the focus of this study. An e-cargo bike is a bicycle designed to transport loads and passengers up to 250 kg, with electric pedal assistance. Under the British 'Electric Assisted Pedal Cycle' regulation, the motor can provide up to 250 W of assistance, enabling assisted speeds up to 25 km/h (GOV.UK, 2024). They typically have a range of 50–80 km (Narayanan and Antoniou, 2022). E-cargo bikes are available in different configurations including two- and three-wheeled, with the load positioned either at the front (long john) or the back (longtail) (Narayanan & Antoniou, 2022).

We posit that the e-cargo bike is a hybrid mode of transport. On the one hand, it shares similarities with the bicycle: e-cargo bikes require pedaling, are low-emission modes, and can use cycling infrastructure. They also overcome some limitations of bicycles, particularly compared to cars, such as the inability to carry more goods and passengers. In this sense, e-cargo bikes could play a key role in the transition to more sustainable mobilities. Although their sizes and shapes vary, they tend to occupy more space than conventional bicycles, both on the road and parked, while being smaller than cars. This relative bulkiness, alongside its family use, has led to comparisons with 'station wagon[s]' (Riggs, 2016, p. 52), reflecting what Pearce calls a 'bifurcation in the elements of cycling and driving practices' (2016, p. 197). In the context of moving from car-centric to more sustainable urban mobilities, this raises the question of how to understand e-cargo bikes, particularly in relation to bicycles and cars. We address this question through the lens of citizenship.

Citizenship has become a growing focus within geography and mobilities scholarship in recent years, considering how it is shaped by mobile interactions between spaces, objects and individuals (Spinney et al., 2015). Previous studies have investigated car driving and citizenship (Packer, 2008; Sheller & Urry, 2000) as well as cycling and citizenship (Egan, 2021; Green et al., 2011; Jungnickel, 2015; Osborne & Grant-Smith, 2017; Waitt & Buchanan, 2023), with Aldred's (2010) work serving as a foundational study on cycling citizenship. However, there is still limited understanding of how citizenship relates to cargo bikes, especially in the context of their potential to help transition from automobility. We address this gap by formulating the concept of 'e-cargo bike citizenship', acknowledging the e-cargo bike's unique position transcending cars and bicycles.

This study aims to understand what constitutes e-cargo bike citizenship, as a cultural identity shaped by e-cargo cycling practices, how such citizenship challenges automobility and vélomobility, considering the need to transition to more sustainable urban mobilities. Emerging concepts of citizenship may provide a broader understanding of urban mobility transitions that includes identities and experiences of e-cargo cycling and go beyond mainstream approaches focusing on mode and infrastructure changes. These insights may, in turn, translate into policy supporting active and sustainable modes, such as bicycles and e-cargo bikes.

We analyse 108 interviews with 49 e-cargo bike users in suburbs of Brighton, Leeds, and Oxford, which were conducted as part of a research project offering trial loans of e-cargo bikes (Philips et al., 2024b). The study focuses on households – whereas existing research primarily studied individuals (e.g. Riggs, 2016), and private use – whereas existing scholarship mainly considered commercial use (e.g. Blazejewski et al., 2020) and shared use (e.g. Bissel & Becker, 2024). In addition, our study focuses on the British context, where cycling has a marginal status, with a 1.7 % share of mileage, and automobility dominates, with a 75 % share in 2021 (Cycling UK, 2022), and where cargo bike uptake lags behind, with 4,000 sold in the UK in 2022, compared to 70,000 in France and 90,000 in Germany (Garidis, 2023).

The research question guiding this study is: What is e-cargo bike citizenship, in relation to automobility and vélomobility, and is it challenging both?

Next, section 2 outlines the theoretical background of our study, drawing on the concept of citizenship and mobilities scholarship. Section 3 describes our method for data gathering and analysis. Section 4 presents our findings that form what we call 'e-cargo bike citizenship'. Some conclusions are drawn in section 5, with policy implications.

2. Theoretical background

This section begins with conceptualising citizenship as it is enacted through practices performed in space, drawing from geographical scholarship. We then discuss key findings from studies that used this concept of citizenship to examine mobile practices, especially car driving, cycling, and, more recently, cargo cycling, in mobilities literature.

2.1. Citizenship through practices performed in space

Citizenship is often understood in its political and legal meaning, pertaining to the rights and responsibilities that formalise individuals' membership to a community, typically bound to a political unit such as the nation-state (Smith, 1994). One influential conceptualisation of citizenship is Marshall's (1950) right-based approach which encompasses civic rights (e.g. freedom of speech), political rights (e.g. the right to vote), and social rights (e.g. the right to a degree of social security).

In the 1990 s, scholars in humanities and social sciences expanded this mainstream perspective to include social and cultural aspects of citizenship, contributing to the emergence of citizenship studies (Isin & Turner, 2007). Citizenship became increasingly seen 'as a cultural identity involving a feeling of belonging to an 'imagined community'' (Painter & Philo, 1995 in Painter, 2002, p. 94), hence transcending the rights and responsibilities of national citizenship, as an identity (individual) that is within the subject but also (as a community) collective.

A critical debate within citizenship studies revolves around lived citizenship (Kallio et al., 2020; Lister, 2007) which considers less formal ways of enacting citizenship through people's everyday experiences and practices, rather than status and rights formalised in the public sphere. Lived citizenship – or citizenship through practice – implies a deeper engagement with space. Research into the geographies of citizenship explores the role of space in shaping identities and citizenships (Painter & Philo, 1995; Spinney et al., 2015), and this at multiple scales of political authority and with a range of other social identities (Desforges et al., 2005; Staeheli, 1999). This engagement with the spaces of citizenship is key in our study, as we consider how e-cargo bike users perform their citizenship through ordinary mobile practices in urban space.

2.2. Mobile citizenships

In a world that is increasingly mobile, flows, movements, and networks across and within territorial borders challenge state-centric and static conceptions of citizenship (Isin, 2008; Urry, 2000a, 2008). Mobilities scholars have explored how 'forms of mobility – in relation to objects, subjects and places – actively constitute citizenship as both a status and a set of relations' (Spinney et al., 2015, p. 325). While transnationality and migration have been central to the scholarly debates on mobilities and citizenship (Sheller & Urry, 2006), a growing number of studies have examined how everyday mobile practices like cycling or driving can shape mobile citizenships. Mobile citizenships then constitute practically enacted cultural identities such as 'the cyclist' or 'the car driver', while also being shaped by social identities such as gender, socioeconomic status, or age (Spinney et al., 2015).

Automobility penetrates many aspects of our social and cultural lives through 'major discourses of what constitutes the good life, what is necessary for an appropriate citizenship of mobility' (Urry, 2004, p. 26). The automobile citizen is depicted in literature as a hybrid assemblage of a person and a machine (Green et al., 2011; Randell, 2017), but also of the infrastructures and cultures of mobility that sustain automobility (Sheller & Urry, 2000). An important aspect of automobile citizenship is how individuals engage through their cars in 'private-in-public' spaces

(Sheller & Urry, 2000, p. 736), limiting social interactions 'on the outside' in comparison to cycling (Aldred, 2010, p. 28). Mitchell (2005) terms this phenomenon the 'SUV model of citizenship' wherein individuals prioritise privatised, cocooned movement through public space while avoiding interactions other than with their passengers. Moreover, the automobile citizen can travel at any speed, at any time, in any direction – a capability which is often associated with freedom (Packer, 2008; Sheller & Urry, 2000); but those who do not possess a car or a license are effectively excluded from this citizenship (Aldred, 2010; Sheller & Urry, 2000).

Recent research in cycling has increasingly focused on the notion of citizenship to explore the identities and perceptions of cyclists (Aldred, 2010, 2013a; Egan, 2021; Green et al., 2011; Osborne & Grant-Smith, 2017). Cycling citizenship is characterised as 'performative, embedded in contested, normative, and local assumptions of riding a bike' (Waitt & Buchanan, 2021, p. 4). In other words, individuals' engagement with cycling can reflect and shape their identities as 'cyclists'. These identities are formed locally, relying on representations, discourses and norms that develop around cycling and cyclists in specific places. A key contribution is Aldred's (2010) study in Cambridge, which identifies four dimensions of cycling citizenship: responsiveness to environmental issues, attention to self-care, local rootedness and connection to the community. In this study, we examine what emerges as e-cargo bike citizenship in three British cities and compare it to cycling citizenship to determine whether e-cargo bike citizenship challenges vélomobility or automobility.

There is a contested discourse around the cycling citizen, projecting positive and negative associations. On one hand, the cycling citizen is viewed positively as someone who cares for and even has a responsibility towards the environment, sometimes as a response to the dominance of automobility (Aldred, 2010; Egan, 2021; Freudendal-Pedersen, 2015). This environmental stance echoes environmental citizenship (Dobson, 2007), which encompasses rights and responsibilities for creating a sustainable society, through behaviours that have beneficial environmental effects such as recycling or cycling. On the other hand, cycling citizens have negative associations: as assertive, risk-takers, or even deviant from the norm that is automobility (Aldred, 2013a; Daley & Rissel, 2011) – though this deviation varies across contexts. This stereotype of the 'hardened' or 'proper' cyclist fails to reflect the diversity among cyclists, even though they are a minority in the UK, and even result in potential stigmatisation (Aldred, 2013a; Horton & Jones, 2015). Emphasising negative forms of citizenship can be used as a tool by the incumbent automobility regime to create doubt and undermine the veracity of any claim that vélomobility represents a practical, equitable or sustainable proposition for the mobility system.

Another issue with the cycling citizen is the marginalisation of individuals who do not align with its dominant identities and representations. For instance, Osborne & Grant-Smith's (2017) Australian-based study shows that the dominant portrayal of the cycling citizen in policy documents as Middle-Aged Man in Lycra (MAMIL) could make cycling less accessible to groups that do not identify as such. Steinbach et al.'s (2011) London case study also pointed out the invisibility of some groups in cycling practices by showing how the goals or 'accomplishments' of cycling in terms of e.g. health, safety or transport efficiency resonate differently across gendered, ethnic and class identities. With the concept of e-cargo bike citizenship, we consider which identities are linked to e-cargo cycling, and how these might differ from'the cyclist' or'the motorist' in our studied context, but also which identities could be marginalised from these e-cargo cycling practices.

Interactions with and in space are also a central aspect of cycling citizenship. Cycling citizens are characterised by their rootedness in local physical and social environments, which stands in contrast with enclosed automobility practices (Aldred, 2010). Beyond mere spatial and local rootedness, cycling citizenship can be understood as key to 'the recognition of cyclists as legitimate public space users – albeit with relevance to matters of the right to the city' (Egan, 2021p. 24). This encompasses, for instance, the collective efforts of 'biketivists' in cities (Castañeda, 2020; Furness, 2007) as well as the individual experiences of e.g. women who negotiated their citizenship through everyday cycling and cycle wear in nineteenth-century Britain (Jungnickel, 2015). In this study, we do not consider citizenship as a form of activism but as a way to legitimise some forms of mobility, such as (e-cargo) cycling, that are usually marginalised in urban space dominated by automobility (Balkmar, 2020).

Emerging scholarship explores how cargo cycling practices are intertwined with the performance of identities and citizenship, although explicit theoretical engagement with citizenship remains limited. A prominent theme in this literature is the enactment of sustainable identities, particularly in relation to parenting; for example, Marincek et al. (2024) highlight 'sustainable parents' as a user group in a Swiss-based study. In a Norwegian study, cargo bike users mentioned being an active and eco-conscious role model, especially for children, to be a motivator for use (Bjørnarå et al., 2020). These identities are formed considering cargo bikes' potential to alleviate the car dependence of households (Bissel & Becker, 2024; Marincek et al., 2024; Narayanan et al., 2024). Studies show that family identities are reshaping through cargo cycling, by decoupling parenting and automobility, and normalising cycling in family life, with children reportedly appreciating this mode of transport (Bjørnarå et al., 2020; Dowling & Maalsen, 2020; Riggs & Schwartz, 2018; Thomas, 2022). Images and identities of cargo cycling vary per context: while in high-cycling contexts such as the Netherlands, it may align with modern parenting and gender roles (Boterman, 2020), whereas in low-cycling contexts such as the US, cargo cyclists sometimes face judgment of risky parenting behaviour (Thomas, 2022).

In sum, based on insights from scholarship on spaces of citizenship, automobile citizenship, and cycling citizenship, our article formulates the concept of e-cargo bike citizenship which we understand as a cultural identity involving a feeling of belonging to an imagined community through e-cargo bike practices and in relation with subjects, objects, and spaces, and asks whether it challenges vélomobility, automobility, or both.

3. Methodology

This section presents the methodology used for data collection and analysis.

3.1. Data collection

We conducted interviews with e-cargo bike users in suburbs of three British cities, namely Preston Park and Hove Park (Brighton & Hove), Guiseley, Yeadon and Otley (Leeds), and Kennington (Oxford), conducted as part of a research project offering trial loans of e-cargo bikes – both longtail and long john models. The project design and data collection methods of the project are presented in detail in (Philips et al., 2024b). Leeds has low cycling rates – 5.7 % of adults cycle weekly in 2023 – which is lower than the national average (10.1 %), whereas Oxford is known for its high levels of cycling (35.1 %), and Brighton is intermediate (16.6 %) (Gov.UK, 2024). All three cities are developing their cycling infrastructure, although the network is not yet continuous. More details about the trial areas are given in Table 1 and Fig. 1 below. These trials aim to understand whether vehicles like e-cargo bikes could support a change in households' travel habits. Households were recruited through a survey conducted in the neighbourhoods selected for the trials (n = 996). The survey was circulated on social media, with flyers distributed across key sites in the selected neighbourhood, such as local schools, stores, and train stations. 52 % of respondents expressed interest in receiving further information about the trials. The research team sent another potential participant survey, which 154 people completed (Philips et al., 2025). From the survey, trial participants were selected based on several criteria, including their availability to use the

Table 1
Trial location information.

Trial location (**city** — neigbourhood)	**Leeds** — Guiseley, Yeadon and Otley	**Brighton** —Preston Park and Hove Park	**Oxford** — Kennington	English average
Postcodes	BN1, BN3	LS18, LS19, LS20, LS21, LS29	OX1, OX4, OX14	n/a
Type	Satellite towns on the edge of Leeds' urban area	Inner suburbs of Brighton	Village on the outskirts of Oxford	n/a
Population	152,000	188,000	171,000	n/a
Population density (inhabitants/km^2)	2,158	8,970	4,033	438
% of households without cars	11	10	10	22
Type of e-cargo bike loaned	Long john (2), Longtail (3)	Longtail (4)	Long john (4)	n/a

Adapted from Philips et al. (2025).

e-cargo bike, availability of secure storage space, and expressed intention to reduce car journeys.

49 households participated in the trial, for one month each, in the summer of 2023 (see Fig. 2). 11 of the 49 participating households were also loaned an e-cargo bike for the winter period (October 2023-March 2024). A total of 256 interviews were conducted: pre-trial, weekly during the trial, and end-of-trial for summer participants; end-of-trial for winter participants. We focus on households to acknowledge the importance of understanding the trial's effects on individuals *and* their family members, neighbours, and colleagues. Table 2 presents some socio-demographic characteristics of lead users of participating households. In a pre-trial survey, we noted that participants are more prone to cycling and keen to reduce car use than the national average (Philips et al., 2024b)).

Interviews were between 20 and 90 min long and captured in-depth insights into participants' experiences, expectations, hopes, concerns, and perceptions about e-cargo bike adoption and use. They also covered participants' willingness to use and buy an e-cargo bike in the future and whether this could reduce their car use. The interview guide is available on a data repository (Glachant et al., 2025). All interviews were recorded with the consent of participants and transcribed for analysis (see dataset on Cass et al., 2024). Ethical approval was received from University of Leeds Ethics Committee (Reference FREC 2023–047701198).

3.2. Data analysis

The data were analysed with codes developed by the research team, mostly deductively, drawing from our interview questions and prompting strategy. There was an element of inductive coding as well,

Table 2
Demographics of the lead users of participating households.

Demographic	Item	Frequency (n = 49)	Demographic	Item	Frequency (n = 49)
Gender	Female	29 (59 %)	Children	Yes	37 (76 %)
	Male	20 (41 %)		No	10 (24 %)
Age (years)	25–34	7 (14 %)	Cars owned	0	1 (2 %)
	35–49	33 (67 %)		1	25 (51 %)
	50–64	5 (10 %)		2+	23 (47 %)
	65+	4 (8.2 %)	Cycling frequency	Weekly	33 (67 %)
Employment	Yes	38 (84 %)		Monthly	8 (16 %)
	No	7 (16 %)		Yearly	4 (8.2 %)
				Never	4 (8.2 %)

Fig. 1. Map locations.

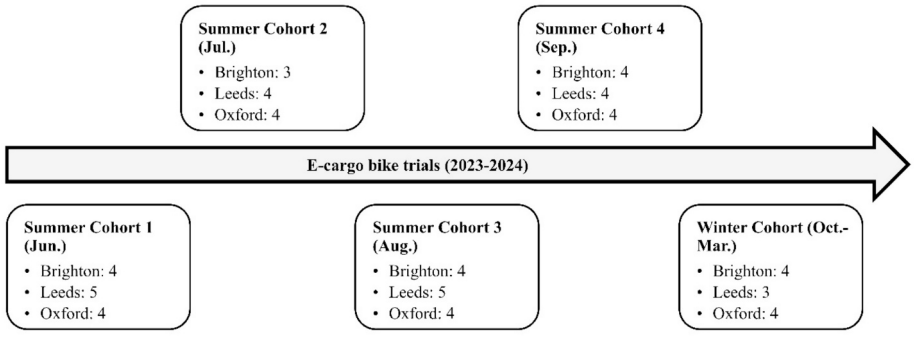

Fig. 2. Trial timeline with cohorts and participating households per city.

after an initial coding round. All authors engaged in the collaborative coding of interview transcripts using NVivo 14 collaborative version. While three authors participated in data collection, the fourth remained uninvolved to mitigate bias. We employed a qualitative approach to intercoder reliability aligning with the interpretivist paradigm of this study (O'Connor & Joffe, 2020). This involved multiple rounds of test coding on the same interview transcripts and subsequent group discussions on divergences and overlaps. For this article, we collectively selected codes and keywords deemed relevant to the research question during in-person data analysis workshops, based on our theoretical framework (see Table 3). We then ran queries on NVivo using these keywords and codes to interrogate the data. This study considers only summer pre- and end-of-trial interviews (Sum.), as well as winter end-of-trial interviews (Win.) (n = 108) because they were deemed the richest to identify elements of e-cargo bike citizenship.

4. Findings

This findings section is structured along three themes: broadening the scope of cycling identities (4.1.), family citizenship (4.2.), and interacting with local communities (4.3.). Our analysis also considers how e-cargo bike citizenship compares with automobility and vélomobility, as we aim to find out how such citizenship challenges both.

4.1. Broadening the Scope of Cycling Identities

4.1.1. Normalising Cycling

Our analysis identifies a key theme: e-cargo cycling has the potential to normalise cycling, especially in the UK, where cycling carries negative cultural associations. Unlike the 'proper' UK cyclist archetype, often associated with sporty, leisure cycling and, as one participant described, 'those Lycra-clad people that do it on a weekend' (Leeds, Female, 40–44, Sum.), e-cargo bike users engage in 'everyday' utility rides enabled by e-cargo bikes, often aligned with daily household needs (Oxford, Female, 60–64, Sum.). One participant explained, 'I think too few people see cycling as (…) a mode of transport, not just to put in the back of the car, take to the local park, ride round for half an hour, put it back in the back of the car, take it back and put it in the back of the garage' (Leeds, Female, 40–44, Sum.). For this participant, cycling is a leisure activity enabled by car use.

Portraying e-cargo cycling as a utilitarian activity can help normalise cycling practices. As suggested by a participant, 'It would be nice to normalise it, for people to see non-cyclists riding, so they're not cyclists, just normal people going to the shop, that will change the perception' (Leeds, Female, 40–44, Sum.), and possibly transition away from car use. This aligns with research on cycling identities, which critiques the label 'cyclist' and prefers terms like 'people who cycle' or 'people on bikes' (Aldred, 2013b; Caimotto, 2020). Moreover, we find several references to contexts such as the Netherlands: '[In the Netherlands], you see ordinary people riding bikes around in their normal clothes whereas the irony, for Otley particularly, is that it's supposed to be like a cycling mecca because of track cyclists, hardly anyone cycles like as a mode of transport' (Leeds, Female, 40–44, Sum.). These findings support existing scholarship on the 'normalcy' of Dutch cycling (Kuipers, 2013; Oosterhuis, 2016), although this is increasingly contested by the diversification of cycling as modes such as cargo bikes and e-bikes become increasingly a means to show one's identity (Glachant & Behrendt, 2024; Te Brömmelstroet et al., 2020).

Table 3
Codes and keywords used for analysis.

Codes	
Children	Infra-household
Cycling comparisons	Local politics
Environment	Neighbourhood
Financial	Place
Guilt and car avoidance	Politics
Identity	Privilege
Inclusion-exclusion	Social relations
Keywords	
Car driver	Motorist
Citizen	Netherlands
Community	Scandinavia
Cyclist	UK

4.1.2. Road Space Negotiation

E-cargo cyclists often experience positive interactions with car drivers compared to 'proper' cyclists, as explained by a participant:

> '[I] feel people do actually give you a lot of space compared to when I'm in Lycra on my road bike where I think I'm dehumanised (…) I'm just one of those idiots slowing down people. But when somebody sees that it's a bloke stood upright with two kids in the front clearly doing a chore rather than a pleasure ride, (…) people do give you more space and patience' (Leeds, Male, 40–44, Sum.).

Several participants experienced being given more space by motorists on the road, mainly due to the size of their vehicles and the space they occupy on the road. For instance, a participant from Oxford mentioned riding in the middle of the road rather than moving over to the left to allow cars to pass (Oxford, Male, 35–39, Sum.). Another participant remarked, 'On the e-[cargo] bike, you were treated more as a similar road user, and given more space.' (Brighton, Female, 45–49, Win.). These experiences align with other studies on cargo bikes (e.g. Thomas, 2022). Access to space is crucial in discussing mobile citizenships, as 'spaces of mobility' such as roads, paths and streets are where citizenship is enacted (Spinney et al., 2015, p. 328; Thorpe, 2023). This relation between citizenship and space should be understood within the system of automobility, which has changed public spaces into public roads that primarily accommodate those moving in cars, effectively excluding others, such as pedestrians and cyclists, from the 'public' (Urry, 2000b). These statements from participants illustrate that e-cargo bike users seem recognised as legitimate users of public space to a certain extent, like motorists. Participants also mentioned training they received before the trial, with indications to 'occupy the space' – claiming their right to public (road) space.

To avoid negative stereotypes and minimise potential abuse from car drivers, a participant changed his appearance when riding the e-cargo bike: 'The less you look like a cyclist and more like a human being, the less likely you are to be treated like a cyclist, i.e. cut up, knocked off, you know, not treated with respect' (Leeds, Male, 40–44, Sum.). This quote reflects the dehumanisation cyclists often face and changing behaviours of motorists, especially when using Lycra clothing or helmets (Limb & Collyer, 2023; Walker, 2007; Walker & Robinson, 2019).

4.1.3. From belonging to polarisation

Despite distancing themselves from sporty and leisurely cyclist identities, participants still felt part of the broader cycling community. A Leeds participant noted, 'When they're on a bike and look at you, 9 times out of 10 people give me a wave, which kind of invites you into the crowd' (Leeds, Male, 30–34, Sum.). An Oxford participant described it as 'dipping [their] toes into the biking community', suggesting that e-cargo cycling may form a distinct subgroup (Oxford, Male, 40–44, Sum.). Several participants mentioned the growing presence of e-cargo bikes, especially in Brighton and Oxford. For instance, a Brighton participant shared that seeing e-cargo bikes reduces their feeling of isolation: 'It's still rare enough that if you see [one], if you pull up next to someone [on an e-cargo bike] you're kind of like, oh hello', noting a sense of 'camaraderie' among e-cargo bike riders (Brighton, Male, 45–49, Win.).

Several participants deplored the polarisation between cyclists and motorists in the UK, especially intensified by recent public debates on

Low Traffic Neighbourhoods (Gössling et al., 2024; Whelan et al., 2024), like this Oxford participant:

> 'I feel people are very much entrenched in us versus them, cyclists versus drivers, obviously it's not true, lots of people are both but you do get this rhetoric of, 'oh cyclists are always awful, they're always jumping red lights, (…) they don't listen to the rules of the road' and then, on the other side, cyclists thinking drivers are always close passing them' (Oxford, Male, 45–49, Sum.)

However, this categorisation into different groups such as motorists, cyclists, e-cargo bike riders might be too simplistic. In line with Aldred (2013) on cycling identities in the UK, we find that identities are multiple and overlapping. Indeed, the e-cargo bike riders of our study are also drivers, with 51 % of them owning one car, and 47 % owning two cars or more, but also cyclists, with 67 % of them cycling weekly.

Overall, our findings suggest that e-cargo bike citizenship has the potential to diversify and perhaps normalise cycling practices, by reframing them into a legitimate, utilitarian activity for more people rather than a distinctive sporty identity. It also illustrates how e-cargo bike citizenship can disrupt automobility by reframing who counts as a legitimate citizen in public space. Next, we discuss how e-cargo bike citizenship relates to social norms around parenting.

4.2. Family citizenship

4.2.1. Cargo cycling and parenting

E-cargo bikes accommodate the 'commitments and requirements' of family life, contrasting with conventional cycling, often perceived as individualistic and sometimes 'selfish' given time-constrained parenting (Leeds, Male, 40–44, Sum.). A Brighton participant put it: '[E-cargo cycling] can co-exist with parenting. So without an e-cargo bike you have to either parent or go out on your bike, you can't do both whereas with that you can combine the two.' (Brighton, Male, 45–49, Win.). This flexibility challenges the perception that automobility is essential for parenthood (Freudendal-Pedersen, 2009). E-cargo bikes provide flexibility for household tasks such as grocery shopping with children and school runs, reminiscent of the independence typically associated with cars. One participant noted how using the e-cargo bike enabled them to handle household duties while another family member used the car: 'We treat [the e-cargo bike] just like a car (…) with the cargo [bike] I felt more mobile, I could fit more things in', especially compared to walking (Leeds, Female, 30–34, Sum.). While most households did not completely stop using their cars, several mentioned reducing their reliance on a second car.

E-cargo bike use supports combinining care and professional duties, as a Leeds participating mother puts it: 'I can transition from being stressed and with a thousand jobs in my head to do, to being home and being able to parent better because I've had 40 min of pedaling' (Leeds, Female, 40–44, Sum.). This finding echoes studies on parenting and cargo cycling (Dowling & Maalsen, 2020; Thomas, 2022). Although no clear gender divide emerged, a Brighton participant noted seeing many mothers on e-cargo bikes, while cycling is usually perceived as more masculine. Because of their carrying capacity, cargo bikes could promote gender equity in cycling, especially in low-cycling contexts where women tend to cycle less than men and primarily handle care duties, as argued by Riggs and Schwartz (2018). However, the considerable size of e-cargo bikes can be a barrier for women, as confirmed by two participants in Leeds.

4.2.2. Family sociabilities

Beyond utility e-cargo bike rides foster family bonding, 'turn[ing] a journey into something more interesting for the family, (…) more participatory for everybody' (Oxford, Male, 45–49, Sum.). Interviews revealed that various household members, including children, influenced the decision to use the e-cargo bike. Many participants who were loaned long-john e-cargo bikes valued the ability to see and interact with passengers during rides. For instance, an Oxford participant said:

> 'One thing that's nice about it, and this is very specific to having a baby, is that he's sitting in front of you, looking at you, right, whereas at the moment we tow him in a trailer and you can't see him, you can't talk to him, whereas with this [e-cargo bike] he's sitting right there in front of you and it's actually really nice' (Oxford, Female, 35–39, Sum.).

While this ability to interact with family members echoes automobility's social aspect (e.g. Barker, 2009), one participant who was loaned a long-tail observed that e-cargo bike rides may be less sociable than car rides due to the open nature of the e-cargo bike compared to the enclosed space of a car:

> 'When you're sitting in the car next to each other you do tend to chat. Erm… but then there's a certain other kind of sociability, which is a shared experience of doing something fun together… like when we went on the rollercoaster together, we didn't talk to each other during the screaming hell ride, but, you know, afterwards we had a shared experience. So I think it's like that, we have this shared experience, but it is, I guess, less sociable' (Brighton, Male, 45–49, Sum.).

4.2.3. Active and sustainable lifestyles

Furthermore, e-cargo bikes allow users to balance family time with an active and sustainable lifestyle. A Brighton participant noted, 'When you've got two young children, it isn't always possible to do a regular exercise, (…) so being able to just go on like a 15-minute cycle ride (…) is great' (Brighton, Female, 30–34, Sum.). This corroborates findings about parents who cite exercise as a motivation for using e-(cargo) bikes while doing purposeful trips with their children (Schwartz, 2016; Thomas, 2022). Several participants highlighted the role of cargo bikes in instilling environmental values in children, fostering a cycling culture within families:

> 'I suppose finally to be a role model to my daughter so that she can see that it's possible to live a life without a car and be an active sort of lifestyle' (Leeds, 40–44, Male, Sum.).

This suggests e-cargo cycling can shift children's mobility norms from automobile to more sustainable and active practices, potentially shaping future generations' views on e-cargo bikes and bicycles as common transport modes (Schwartz, 2016). Notably, one participant highlights the role of mothers in this shift: 'I really genuinely hope that the revolution starts with mums doing the [school commute], you know, because there is a gendered thing' (Leeds, Female, 40–44, Win.). However, e-cargo cycling may also function as virtue signalling, similar to conventional cycling (Green et al., 2011; Horton, 2003).

In short, e-cargo bike citizenship is for many a family citizenship, in contrast with cycling citizenship, which usually involves one person. It combines freedom and flexibility associated with automobility, seen as 'essential' for family life (Freudendal-Pedersen, 2009), with the health and environmental benefits of cycling, thereby promoting active and sustainable family lifestyles.

4.3. Interacting with local communities

4.3.1. Social interactions and community engagement

Our analysis indicates that e-cargo bike practices foster interactions between participating households with their friends, neighbours, or even strangers as they navigate different local geographical spaces such as neighbourhood streets, main roads, schools or supermarkets. These interactions also occurred beyond geographical spaces, in households' social spaces like their family, gym or workplace, where discussions occurred around the e-cargo bike and the trial. These interactions may also influence others to change their behaviours, as a Leeds interviewee noted: 'People were really noticing it a lot and asking us about it a lot

and realising that we were using it and it was something that they could possibly use' (Leeds, Female, 40–44, Win.). Multiple participants reported overall positive community responses:

> 'Overwhelmingly positive, ridiculous. Like people wanting to come and talk to me, children wanting to get in it. We've constantly got visitors in the bike, parents at nursery wanting to come and ask questions about it, but just, you know, everyone' (Leeds, Female, 40–44, Sum.).
> 'Getting the smiles and the nods and the looks from other cyclists or pedestrians or anything else, particularly people at the school, they always seem to very positive and interested in it' (Oxford, Male, 30–34, Sum.).

For a winter trial participant in Brighton, riding an e-cargo bike enhanced their feeling of belonging to the local community: 'You definitely feel like in Hove a sense of community because people recognise the bike and then they always wave at the kids, like the people on the flower stand or from the shop, they shout 'morning' every morning to the kids on the bike and people acknowledge that it's you because of the bike' (Brighton, Female, 25–29, Win.). Unlike cars, which often protect users from social contact (Barker, 2009), e-cargo bikes encourage engagement with local communities, reflecting elements of cycling citizenship as being 'on the outside' (Aldred, 2010, p. 28). This may help address the decline in community feeling linked to automobility (Freund & Martin, 2007).

A key vector of these interactions is the presence of passengers, who engage with people outside the e-cargo bike. Children often wave and chat with people. For instance, an Oxford participant noted that their child loves looking out from the e-cargo bike as they would from a car window, 'just seeing everything a bit closer up and not as fast going past him' (Oxford, Male, 30–34, Sum.). The participant added that their child 'is just constantly being observant and inquisitive about everything that [they] go past and why [they]'re doing something on the bike and why are [they] on this side of the road, why aren't [they] on the path and that sort of stuff so been really inquisitive about cycling proficiency'. E-cargo bike rides seem to allow passengers to connect more closely with their environment compared to the confined space of a car, where interaction with the outside is optional (Barker, 2009). Moreover, having children as passengers altered how the behaviour of some motorists, who are 'more careful because of the presumption of children being in the front' (Oxford, Male, 30–34, Sum.).

4.3.2. *Novelty and Judgement*

The relative novelty of cargo bikes in the UK, including non-electric ones, attracts attention. A participant recounted their experiences:

> '[E-cargo bikes] are not everywhere, so it's got a kind of novelty, it draws attention, you know, we definitely get, and the kids kind of like that (…) even when I had the old cargo bike that I had, that wasn't electric one, you know, if you went through town the kids were like, 'whoa that's so cool', but also there's a slight madness to it as well when you're loaded up, because they're not everywhere, they're not (…) commonplace, you're like 'oh, my God, he's got three kids in that'' (Brighton, Female, 40–44, Sum.).

Despite generally positive local reactions, some participants feel alienated. One noted, 'The [e-cargo bike] feels very niche, and I felt like I was some sort of (…) weirdo with the [e-cargo] bike, (…) everyone looks at it (…) you could tell like 'you're thinking that's a clown bike'' (Leeds, Female, 30-34, Win.). This participant also explained that, despite this perception, e-cargo bikes are seen more positively than regular bicycles, reflecting the less confrontational traffic interactions mentioned in Section 4.1.: 'As I said before, people shout at me often when I was commuting on a normal bike, whereas on the cargo [bike], perhaps they think you're a lunatic, but they don't say anything and shout at you.' (Leeds, Female, 30–34, Win.). These wordings may undermine the e-cargo bike's legitimacy as a serious mobility option.

Judgment is common, especially regarding parenting and transporting children. A winter trial participant explains that adults judged them at the school gate 'Adults were like, 'oh, you're the nutcase who rides your kids to school on a bike'' (Brighton, Male, 45–49, Win.). Another participant shared similar reactions: 'They're flabbergasted that we might cycle places with the girls on the back and a lot of like 'oh do you feel safe? Do you not worry about them?' and those kinds of comments. But again I think that's just the projection of other people's fears really' (Leeds, Female, 40–44, Win.). These quotes illustrate broader perceptions of cycling as risky in the UK, especially with children, contrasting with the perceived safety of car use, which is seen as a retreat from 'the outside' and from fear of traffic (Horton, 2007). Another participant, who borrowed a long john e-cargo bike, described fellow families at their children's cricket club reacting: 'They look at it and think 'that's really odd, I've never seen anything like that before' (Leeds, Male, 40–44, Sum.). This participant suggested that reactions might differ for a long-tail e-cargo bike, which resembles a conventional bicycle more closely.

In sum, e-cargo bike citizenship develops through the interactions between riders, passengers and local communities in public space, echoing cycling citizenship, which is shaped 'on the outside' (Aldred, 2010, p. 28). At the same time, passengers mediate these interactions, as in a car. Despite predominantly positive interactions, e-cargo bike use is often viewed as unconventional or even risky, like cycling, in a society where automobility is the norm.

5. Conclusion

This article formulated the new concept of 'e-cargo bike citizenship' to describe how it challenges both automobility and vélomobility in the context of transitioning to more sustainable urban mobility. Our approach involved analysing interview data collected from e-cargo bike users across three UK cities, as part of trial loans of e-cargo bikes.

The findings of this study centre around three main themes. First, e-cargo bike citizenship seems to expand cycling identities, shifting the perception from leisure to utility cyclists, in the British low cycling context. We find that e-cargo bike citizenship challenges the negative associations of cycling that are very much entrenched in British mobility culture, thereby normalising (e-cargo) cycling practices. Second, e-cargo bike citizenship is for many a family citizenship. It challenges both vélomobility – by fulfilling families' time-pressured commitments that often make them automobile-dependent – and automobility – by enabling them to have more active and low-carbon lifestyles. Third, e-cargo bike citizens interact with local communities, often through their passengers. These interactions are mostly positive but are also marked by the unconventionality of e-cargo bikes, sometimes raising (perceived) safety concerns for the transport of children.

What do these findings imply in relation to automobility and vélomobility in the context of mobility transitions? Our study suggests that e-cargo bike citizenship not only challenges automobility, but could expand vélomobility in two ways. First, e-cargo bikes may help normalise cycling in Britain, which is often considered 'abnormal' (Horton & Jones, 2015) and even 'stigmatised' (Aldred, 2013a) while automobility is normal and dominant. This shift is key for moving away from automobility towards more sustainable mobilities such as cycling, where cultural perceptions hinder cycling adoption (Horton & Jones 2015). Second, e-cargo bike citizenship often involves several people, hence broadening cycling citizenship from the individual to the family scale and surpassing the individuality of cycling. We especially see the potential to reduce families' dependency on cars by combining the advantages of both cars and bicycles: carrying children and shopping while being active and reducing energy use and emissions, in line with existing cargo bike research, especially in relation to parenting (Bjørnaå et al., 2020; Dowling & Maalsen, 2020; Marincek et al., 2024; Thomas, 2022).

Further, e-cargo cycling appears to enable interactions 'inside' between the rider and passenger(s), somewhat reminiscent of automobile

citizenship, although typically with less comfort and varying depending on the type of cargo bike. At the same time, riders are connected 'outside' to their local community, echoing cycling citizenship. E-cargo bikes can then cultivate a cycling culture not only at the family level but also within the local community between different road and space users. Their local rootedness challenges automobility on the spatial aspect, as e-cargo bike citizenship legitimises e-cargo bike practices in a space often shared with cars.

With the novel concept of 'e-cargo bike citizenship', we contribute to scholarship on mobile citizenships that had focused on automobiles and bicycles, but not on e-cargo bikes – a relatively new addition to our mobility systems. By examining how such citizenship might challenge automobility and vélomobility, we broaden the focus from mode shift and infrastructure interventions that currently dominate in mobility transitions approaches to a better consideration of socio-cultural elements such as citizenships. Furthermore, our study contributes to emerging literature on cargo bikes and identity formation, often focused on parenting, with its explicit focus on citizenship.

Several potential limitations should be considered and can lead to future research. The analysis revealed that transport-related citizenships are context-dependent. While our study focused on the UK, where cycling and e-cargo bike use are marginal, it would be relevant to investigate e-cargo bike citizenship in other places, such as high-cycling contexts where e-cargo bikes are more common, and supposedly identities more established. The second limitation concerns the trial setting of the study, which lasted for one month per household, except for the 11 winter trial participants. The one-month trial duration is deemed short for the establishment of citizenship, and a longer-term study with e-cargo bike owners could be valuable to corroborate our findings.

Our findings on e-cargo bike citizenship have policy implications. We hope to have shown that e-cargo bikes could play a role in transitioning from automobility to more sustainable mobility in cities, like cycling, but also beyond cycling, given their potential to expand it. Promoting e-cargo bike use could enable a shift in representations from cycling for recreation to cycling for utility. Such shift could legitimate cyclist identities in the eyes of motorists in the UK, as it would frame cycling as a necessary and purposeful activity. Nonetheless, it could also result in increased tensions between cargo cyclists and car drivers due to competition for road space and the large size of e-cargo bikes, highlighting the need to develop appropriate infrastructure. Also, given the emphasis on cycle commuting in UK-based active travel research and policy in recent years (see for instance Lovelace et al., 2017; Wardman et al., 2007), we invite policymakers to consider other types of utility (e-cargo) cycling, like grocery shopping and school runs, that receive less attention. As cycle commuting in the UK is male-dominated (Aldred et al., 2016), e-cargo bikes may help include more women and children in utility cycling.

CRediT authorship contribution statement

Clara Glachant: Writing – original draft, Visualization, Methodology, Formal analysis, Data curation, Conceptualization. **Noel Cass:** Writing – review & editing, Methodology, Investigation, Formal analysis, Data curation. **Nicholas Marks:** Writing – review & editing, Methodology, Investigation, Data curation. **Labib Azzouz:** Writing – review & editing, Methodology, Investigation, Conceptualization.

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Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Data availability

We have cited the data respository where the data can be found in the manuscript.

References

Aldred, R., 2010. 'On the outside': constructing cycling citizenship. Soc. Cult. Geogr. 11 (1), 35–52. https://doi.org/10.1080/14649360903414593.
Aldred, R., 2013a. Incompetent or too competent? Negotiating everyday cycling identities in a motor dominated society. Mobilities 8 (2), 252–271. https://doi.org/10.1080/17450101.2012.696342.
Aldred, R., 2013b. Who are Londoners on Bikes and what do they want? Negotiating identity and issue definition in a 'pop-up' cycle campaign. J. Transp. Geogr. 30, 194–201. https://doi.org/10.1016/j.jtrangeo.2013.01.005.
Aldred, R., Woodcock, J., Goodman, A., 2016. Does more cycling mean more diversity in cycling? Transp. Rev. 36 (1), 28–44. https://doi.org/10.1080/01441647.2015.1014451.
Balkmar, D., 2020. Cycling politics: imagining sustainable cycling futures in Sweden. Appl. Mobilities 5 (3), 324–340. https://doi.org/10.1080/23800127.2020.1723385.
Barker, J., 2009. 'Driven to distraction?': Children's experiences of car travel. Mobilities 4 (1), 59–76. https://doi.org/10.1080/17450100802657962.
Bissel, M., Becker, S., 2024. Can cargo bikes compete with cars? Cargo bike sharing users rate cargo bikes superior on most motives – especially if they reduced car ownership. Transport. Res. F: Traffic Psychol. Behav. 101, 218–235. https://doi.org/10.1016/J.TRF.2023.12.018.
Bjørnarå, H.B., Westergren, T., Fegran, L., te Velde, S.J., Fyhri, A., Deforche, B., Andersen, L.B., Berntsen, S., Bere, E., 2020. Cumbersome but desirable—Breaking the code of everyday cycling. PLoS One 15 (9), e0239127. https://doi.org/10.1371/JOURNAL.PONE.0239127.
Blazejewski, L., Sherriff, G., & Davies, N. (2020). Delivering The Last Mile: Scoping the Potential for E-cargo Bikes Healthy Active Cities Delivering the Last Mile. http://usir.salford.ac.uk/id/eprint/59007.
Böhm, S., Jones, C., Land, C., Paterson, M., 2006. Introduction: impossibilities of automobility. Sociological Rev. 54 (SUPPL. 1), 3–16. https://doi.org/10.1111/j.1467-954X.2006.00634.x.
Caimotto, M.C., 2020. The Words of people who Cycle. In *Discourses of Cycling, Road users and Sustainability*. Palgrave Macmillan, Cham, pp. 117–133.
Cairns, S., Sloman, L. (2019). Potential for e-cargo bikes to reduce congestion and pollution from vans in cities.
Carracedo, D., Mostofi, H., 2022. Electric cargo bikes in urban areas: a new mobility option for private transportation. Transp. Res. Interdiscip. Perspect. 16, 100705. https://doi.org/10.1016/J.TRIP.2022.100705.
Cass, N., Azzouz, L., Marks, N.. *Elevate Project: Participant Interview Data, 2023-2024*. UK Data Service. https://doi.org/10.5255/UKDA-SN-857656.
Castañeda, P., 2020. From the right to mobility to the right to the mobile city: playfulness and mobilities in Bogotá's cycling activism. Antipode 52 (1), 58–77. https://doi.org/10.1111/anti.12581.
Cox, P., 2019. Cycling: a sociology of vélomobility. In: *Cycling*: A sociology of velomobility. Routledge. https://doi.org/10.4324/9781315533698.
Cycling UK. (2022). Cycling Statistics. www.cyclinguk.org.
Daley, M., Rissel, C., 2011. Perspectives and images of cycling as a barrier or facilitator of cycling. Transp. Policy 18 (1), 211–216. https://doi.org/10.1016/J.TRANPOL.2010.08.004.
Desforges, L., Jones, R., Woods, M., 2005. New geographies of citizenship. Citizenship Studies 9 (5), 439–451. https://doi.org/10.1080/13621020500301213.
Dobson, A., 2007. Environmental citizenship: towards sustainable development. Sustain. Dev. 15 (5), 276–285. https://doi.org/10.1002/SD.344.
Dowling, R., Maalsen, S., 2020. Familial mobilities beyond the private car: electric bikes and car sharing in Sydney, Australia. Appl. Mobilities 5 (1), 53–67. https://doi.org/10.1080/23800127.2019.1571658.
Egan, R., 2021. 'Provoking responsibility': the struggle for recognition as an everyday cyclist in Dublin City. Geoforum 127, 23–32. https://doi.org/10.1016/J.GEOFORUM.2021.09.012.
Freudendal-Pedersen, M., 2009. *Mobility in Daily Life: Between Freedom and Unfreedom*. Ashgate.

Freudendal-Pedersen, M., 2015. Whose commons are mobilities spaces? – The case of Copenhagen's cyclists. ACME: an Int. J. Critical Geograph. 14 (2), 598–621. https://acme-journal.org/index.php/acme/article/view/1188.
Freund, P., Martin, G., 2007. Hyperautomobility, the social organization of space, and health. Mobilities 2 (1), 37–49. https://doi.org/10.1080/17450100601106237.
Furness, Z., 2007. Critical mass, urban space and vélomobility. Mobilities 2 (2), 299–319. https://doi.org/10.1080/17450100701381607.
Garidis, S., 2023. Bicycle Association UK e-bike market results, e-bike summit 5 September 2023. Blavatnik School of Government. University of Oxford.
Glachant, C., Behrendt, F., 2024. 'Social Darwinism has moved to the cycle path': framings of micromobility in the Dutch and British press. Mobilities 19 (6), 1054–1075. https://doi.org/10.1080/17450101.2024.2366850.
Glachant, C., Cass, N., Marks, N., & Azzouz, L. (2025). Data underlying the publication 'Between or Beyond Bicycles and Cars? Navigating E-Cargo Bike Citizenship in the Transition to Sustainable Urban Mobility' (dataset). In: 4TU.Research Data. https://data.4tu.nl/datasets/fd499d06-53df-4f64-b0bc-5d2b55663e3f.
Gössling, S., Schweiggart, N., Nieuwenhuijsen, M., McEachan, R.R.C., Khreis, H., 2024. Urban transport system changes in the UK: In danger of populism? Cities 153, 105273. https://doi.org/10.1016/J.CITIES.2024.105273.
Gov.UK. (2024). CW0302: Proportion of adults that cycle, by frequency, purpose and local authority: England. In: Active Lives Survey. https://www.gov.uk/government/statistical-data-sets/walking-and-cycling-statistics-cw.
GOV.UK. (2024, December 10). EAPC standards and legal requirements. https://www.gov.uk/government/publications/electrically-assisted-pedal-cycles-eapcs/electrically-assisted-pedal-cycles-eapcs-in-great-britain-information-sheet.
Green, J., Steinbach, R., Datta, J., 2011. The travelling citizen: emergent discourses of moral mobility in a study of cycling in London. Sociology 46 (2), 272–289. https://doi.org/10.1177/0038038511419193.
Horton, D., 2003. Green distinctions: the performance of identity among environmental activists1. Sociol. Rev. 51 (2_suppl), 63–77. https://doi.org/10.1111/J.1467-954X.2004.00451.X.
Horton, D., 2007. Fear of Cycling. In: Rosen, P., Cox, P., Horton, D. (Eds.), *Cycling and Society*. Ashgate, pp. 133–152.
Horton, D., Jones, T., 2015. Rhetoric and reality: Understanding the English Cycling Situation. In: Cox, P. (Ed.), *Cycling Cultures*. University of Chester Press, pp. 63–77.
Horton, D., Cox, P., Rosen, P., 2007. Introduction. In: Horton, D., Rosen, P., Cox, P. (Eds.), *Cycling and Society*. Routledge, pp. 1–23.
Isin, E., 2008. Theorizing acts of citizenship. In: Isin, E., Nielsen, G. (Eds.), *Acts of Citizenship*. Bloomsbury Publishing, pp. 15–43.
Isin, E.F., Turner, B.S., 2007. Investigating citizenship: an agenda for citizenship studies. Citizsh. Stud. 11 (1), 5–17. https://doi.org/10.1080/13621020601099773.
Jungnickel, K., 2015. "One needs to be very brave to stand all that": Cycling, rational dress and the struggle for citizenship in late nineteenth century Britain. Geoforum 64, 362–371. https://doi.org/10.1016/J.GEOFORUM.2015.04.008.
Kallio, K.P., Wood, B.E., Häkli, J., 2020. Lived citizenship: conceptualising an emerging field. Citizsh. Stud. 24 (6), 713–729. https://doi.org/10.1080/13621025.2020.1739227.
Kuipers, G., 2013. The rise and decline of national habitus: dutch cycling culture and the shaping of national similarity. Eur. J. Soc. Theory 16 (1), 17–35. https://doi.org/10.1177/1368431012437482.
Limb, M., Collyer, S., 2023. The effect of safety attire on perceptions of cyclist dehumanisation. Transport. Res. F: Traffic Psychol. Behav. 95, 494–509. https://doi.org/10.1016/J.TRF.2023.05.008.
Lister, R., 2007. Inclusive citizenship: realizing the potentia l1. Citizsh. Stud. 11 (1), 49–61. https://doi.org/10.1080/13621020601099856.
Lovelace, R., Goodman, A., Aldred, R., Berkoff, N., Abbas, A., Woodcock, J., 2017. The propensity to cycle tool: an open source online system for sustainable transport planning. J. Transp. Land Use 10 (1), 505–528. http://www.jstor.org/stable/26211742.
Marincek, D., Rérat, P., Lurkin, V., 2024. Cargo bikes for personal transport: a user segmentation based on motivations for use. Int. J. Sustain. Transp. 1–14. https://doi.org/10.1080/15568318.2024.2402753.
Marshall, T.H., 1950. *Citizenship and social class and other essays*. CambridgeUniversityPress.
Mitchell, D., 2005. The S.U.V. model of citizenship: floating bubbles, buffer zones, and the rise of the "purely atomic" individual. Polit. Geogr. 24 (1), 77–100. https://doi.org/10.1016/J.POLGEO.2004.06.003.
Narayanan, S., Antoniou, C., 2022. Electric cargo cycles - a comprehensive review. Transp. Policy 116, 278–303. https://doi.org/10.1016/J.TRANPOL.2021.12.011.
Narayanan, S., Gruber, J., Liedtke, G., Antoniou, C., 2022. Purchase intention and actual purchase of cargo cycles: Influencing factors and policy insights. Transp. Res. A Policy Pract. 155, 31–45. https://doi.org/10.1016/J.TRA.2021.10.007.
Oosterhuis, H., 2016. Cycling, modernity and national culture. Soc. Hist. 41 (3), 233–248. https://doi.org/10.1080/03071022.2016.1180897.
Osborne, N., Grant-Smith, D., 2017. Constructing the cycling citizen: a critical analysis of policy imagery in Brisbane, Australia. J. Transp. Geogr. 64, 44–53. https://doi.org/10.1016/J.JTRANGEO.2017.08.015.
O'Connor, C., Joffe, H., 2020. Intercoder reliability in qualitative research: debates and practical guidelines. Int. J. Qual. Methods 19. https://doi.org/10.1177/1609406919899220.
Packer, J., 2008. *Mobility without Mayhem: Safety, Cars, and Citizenship*. Duke University Press.
Painter, J., 2002. Multi-level citizenship, identity and regions in contemporary Europe. In: *Transnational Democracy*, 1st ed. Routledge, pp. 107–124. https://doi.org/10.4324/9780203464427-9.
Painter, J., Philo, C., 1995. Spaces of citizenship: an introduction. Polit. Geogr. 14 (2), 107–120.
Pearce, J.L.M., 2016. *Carrying cargo and affording decarbonised urban mobility-the integration of cargo bikes into urban load-carrying practices*. University of Canterbury.
Philips, I., Azzouz, L., de Séjournet, A., Anable, J., Behrendt, F., Cairns, S., Cass, N., Darking, M., Glachant, C., Heinen, E., Marks, N., Nelson, T., Brand, C., 2024b. Domestic use of E-Cargo bikes and other E-Micromobility: protocol for a multi-centre, mixed methods study. Int. J. Environ. Res. Public Health 21 (12), 1690. https://doi.org/10.3390/IJERPH21121690.
Philips, I., Cairns, S., de Séjournet, A., Anable, J., Azzouz, L., Behrendt, F., Brand, C., Cass, N., Darking, M., Glachant, C., Heinen, E., Marks, N., Nelson, T., 2025. E-Cargo bikes as a personal transport mode in the UK: insights from national surveys and suburban trials. Prepring.Org. https://doi.org/10.20944/preprints202503.0726.v1.
Randell, R., 2017. The microsociology of automobility: the production of the automobile self. Mobilities 12 (5), 663–676. https://doi.org/10.1080/17450101.2016.1176776.
Riggs, W., 2016. Cargo bikes as a growth area for bicycle vs. auto trips: exploring the potential for mode substitution behavior. Transport. Res. F: Traffic Psychol. Behav. 48–55. https://doi.org/10.1016/j.trf.2016.09.017.
Riggs, W., Schwartz, J., 2018. The impact of cargo bikes on the travel patterns of women. Urban Plann. Transport Res. 6 (1), 95–110. https://doi.org/10.1080/21650020.2018.1553628.
Schwartz, J.E., 2016. *The Impact of Cargo Bikes on the Travel Patterns of Women*. Faculty of California Polytechnic State University.
Sheller, M., Urry, J., 2000. The city and the car. Int. J. Urban Reg. Res. 24 (4), 737–757.
Sheller, M., Urry, J., 2006. The new mobilities paradigm. Environ Plan A 38 (2), 207–226. https://doi.org/10.1068/a37268.
Smith, S.J., 1994. Citizenship. In: Johnston, R.J., Gregory, D., Smith, D.M. (Eds.), *The Dictionary of Human Geography*, 3rd ed. Blackwell, p. 67.
Spinney, J., Aldred, R., Brown, K., 2015. Geographies of citizenship and everyday (im) mobility. Geoforum 64, 325–332. https://doi.org/10.1016/j.geoforum.2015.04.013.
Staeheli, L.A., 1999. Globalization and the scales of citizenship. Geography Res. Forum 19, 60–77.
Te Brömmelstroet, M., Boterman, W., & Kuipers, G. (2020). How culture shapes - and is shaped by - mobility: cycling transitions in The Netherlands. In: *Handbook of Sustainable Transport* (pp. 109–118).
Thomas, A., 2022. Electric bicycles and cargo bikes—tools for parents to keep on biking in auto-centric communities? Findings from a US metropolitan area. Int. J. Sustain. Transp. 16 (7), 637–646. https://doi.org/10.1080/15568318.2021.1914787.
Thorpe, A., 2023. Prefigurative infrastructure: mobility, citizenship, and the agency of objects. Int. J. Urban Reg. Res. 47 (2), 183–199. https://doi.org/10.1111/1468-2427.13141.
Urry, J., 2000a. Citizenships. In: *Sociology beyond Societies*. Routledge, pp. 56–83. https://doi.org/10.4324/9780203021613-7.
Urry, J., 2000b. Sociologies. In: *Sociology beyond Societies: Mobilities for the Twenty-First Century*. Routledge, pp. 1–272.
Urry, J., 2004. The 'System' of Automobility. Theory, Culture Soc. 21 (5), 25–39. https://doi.org/10.1177/0263276404046059.
Urry, J., 2008. Climate change, travel and complex futures1. Br. J. Sociol. 59 (2), 261–279. https://doi.org/10.1111/j.1468-4446.2008.00193.x.
Waitt, G., Buchanan, I., 2023. Velomobilities: cycling geographies and well-being. Geogr. Compass 17 (1). https://doi.org/10.1111/gec3.12672.
Walker, I., 2007. Drivers overtaking bicyclists: objective data on the effects of riding position, helmet use, vehicle type and apparent gender. Accid. Anal. Prev. 39 (2), 417–425. https://doi.org/10.1016/J.AAP.2006.08.010.
Walker, I., Robinson, D.L., 2019. Bicycle helmet wearing is associated with closer overtaking by drivers: a response to Olivier and Walter, 2013. Accid. Anal. Prev. 123, 107–113. https://doi.org/10.1016/J.AAP.2018.11.015.
Wardman, M., Tight, M., Page, M., 2007. Factors influencing the propensity to cycle to work. Transp. Res. A Policy Pract. 41 (4), 339–350. https://doi.org/10.1016/J.TRA.2006.09.011.
Watson, M. (2013). Building Future Systems of Velomobility. In E. Shove & N. Spurling (Eds.), *Sustainable Practices* (1st ed., pp. 117–131). https://www-taylorfrancis-com.dianus.libr.tue.nl/reader/download/be408520-c99e-42da-a6b3-4d9ddd11f5c6/chapter/pdf?context=ubx.
Whelan, I., Luiu, C., Pope, F.D., 2024. Assessing the polarising impacts of low-traffic neighbourhoods: a community perspective from Birmingham, UK. Int. J. Environ. Res. Public Health 21 (12), 1638. https://doi.org/10.3390/IJERPH21121638.