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Abstract

Congestion pricing concerns the right to travel during peak hours. Most proponents of pricing propose an impersonal and anonymous allocation mechanism based on the willingness-to-pay of the person who travels. This view builds on the concept of private property rights and we confront this view with a different conception of rights, one based on needs. Furthermore, we discuss the results of an illustrative experiment in which respondents allocate access rights to hypothetical travellers. We can conclude that replacing individual self-judgment by judgments of others offers a fresh perspective on congestion pricing.

Keywords: Congestion pricing; Road pricing; Ethics; Rights; Justice; Public transport

1. Introduction

The implementation of congestion charging is widely debated by academics, policy makers and the public. Most of the literature sees road space as a scarce good which should be distributed efficiently over the population and many scholars point to pricing as the preferred policy tool. This view is built on the premise that roads should be governed by market norms. This essay challenges the dominant approach and explores the question 'who has the right to travel during peak hours'.

Our basic premise is that congestion pricing can be seen as an answer to the question put forward in the title of this essay. In this question 'peak hours' refers to the concept of scarcity, which means in the context of transport that not everyone can travel at the same time. Consequently, in one way or another, a distinction is made between those having 'the right to travel' and those who have no such right. Please note that this distinction is not always made explicit. Section 2 starts with a description of the notion of rights adopted in the mainstream congestion pricing literature. Since the idea of pricing has generated considerable opposition, it is interesting to have a look at how the literature deals with counter-arguments, which is done in Section 3.

The reader will notice that the discussion of the idea of congestion pricing in Sections 2 and 3 contains general descriptions as well as anecdotal quotes. These elements illustrate how arguments are developed and are, in line with the rhetoric of economics literature, seen as an integral part of the argument (McCloskey, 1998). This is not mere rhetoric, but acts, among other things, as a bridge between theoretical models and reality, and such statements show the inevitably normative and political nature of economics (see e.g. Zuidhof, 2014).

Section 4 discusses alternative conceptions of rights. On the one hand, there is the notion of the right -or freedom- to move, and on the other hand, there are need-based rights, which can be found in the accessibility discourse (Farrington, 2007). Most of the literature on justice and transport stresses that people need accessibility and that rights follow from these accessibility needs (Farrington and Farrington, 2005; Martens, 2012). In contrast, the market-based approach emphasises efficiency, consumer sovereignty and individual responsibility. It seeks justice in an institutional setting where agents can autonomously decide how much transport they consume. This reliance on market norms has been criticised for being too individualistic, and the application of political and democratic norms is put forward as an alternative, inspired by the ideas of Anderson (1993; see Vanoutrive, 2017).

Anderson (1999, p.315) proposes a relational theory of justice and democracy which recognises '*the fact that most of the things people want to do require participation in social activities*'. A similar point has been made in the context of transport by Rajan (2007) who argues that driving requires considerable investments by others, and is hence '*not a solo activity*' (p.83). Within such a context, the central question relates to what people owe one another, or more specifically, to whether others are obliged to provide road space. According to Anderson (1999, p.309–310) people's '*market choices offer no guidance whatsoever to what citizens are obliged to provide one another on a collective basis*.' (italics in original). She argues in favour of democratic equality, which involves the creation of '*a community in which people stand in*

relations of equality to others' (p.289) in order to guarantee '*effective access to the social conditions of freedom to all citizens*' (p.326). In other words, when someone suffers from a lack of basic accessibility, the community is obliged to eliminate this injustice, however, without resorting to stigmatisation, since this would violate the principle of equality. In this way, freedom, justice and democracy are unified in the framework of democratic equality, thereby avoiding a too narrow focus on distributive aspects. Related ideas on the connection between justice and democracy can be found in the work of Sen (2009) who emphasises public reasoning, discussion and open impartiality.

Moving from an individualistic market-based approach to a need-based or social justice paradigm, the discussion is no longer about the interpretation of individual preferences, but about publicly debating the allocation of road space and accessibility in general. To exemplify the discussion, Section 5 presents the results of a survey in which respondents were asked 'who has the (most) right to travel on congested motorways?', and given the central role of public transport in congestion pricing discourse, we conducted a second survey and asked 'who has the (most) right to travel by train during peak hours'. A central feature of this experiment is the replacement of the traditional self-judgment by a judgment of others. By doing so, this approach offers a fresh perspective on the concept of congestion pricing. The discussion and concluding sections highlight the implications of this analysis. In the remainder of the text, we refer to *congestion pricing* since it can refer both to road and rail (cf. Vickrey, 1963), and because we do not discuss funding tolls or pricing for environmental externalities.

2. Transport economics and its conception of rights

The congestion pricing literature, as we know it today, emerged during the 1950s and 1960s (Derycke, 1998; Rooney, 2014; Vanoutrive, 2017) and was from the beginning a reaction to the inefficient allocation of road space (Beckmann et al., 1956; Vickrey, 1955; 1963; Walters, 1954; 1961). The stated problem, (hyper)congestion, has been formalised using diagrams showing the relationship between traffic flow, speed and density, and in the basic congestion pricing model which highlights that the marginal social cost curve is above the marginal private cost curve, where the latter intersects the demand curve. The solution that follows from this problem definition is marginal social cost pricing, the imposition of a tax that bridges the gap between the private and social marginal cost (Walters, 1961). This type of tax was famously discussed by Pigou, but was not applied to the case of congestion until after the Second World War (with the exception of the discussion of a metaphor of two roads by Pigou himself in 1920 and a discussion by Knight four years later; see McDonald, 2013).

The definition of and the solution to congestion formulated in the 1960s is still the basis of mainstream transport economics and can be found in many papers (Morrison, 1986), textbooks (Blauwens et al., 2010; Button, 1993) and working papers (e.g. The World Bank; Hau, 1992) written since then. Since the second half of the 1990s, there has been an increase in academic interest in the topic fostered by, among other things, the European Commission, technological developments and '*a broader ideological acceptance of market mechanisms*' (Lindsey, 2006, p.293).

Let us now turn to the concept of rights in the transport economics literature. We start with Buchanan, who was one of the first to imagine a market for road services, with '*the right to use the road*' as the service offered to drivers (Buchanan, 1956, p.308). Later, Coase's property rights approach (Coase, 1960) influenced many scholars, especially those who call for tradable rights (Buitelaar et al., 2007; Viegas, 2001; Raux, 2004; Verhoef et al., 1997a). Unlike the Pigouvian approach, which proposes to tax those who cause externalities, Coase proposed a reciprocal system in which the most optimal outcome is achieved when the producer of an externality negotiates with those who want to stop the externality causing activity. Within this framework, ill-defined property rights are the main cause of externalities and market failures such as congestion (Hau, 1992; Buitelaar et al., 2007). Note that although the owner of a road is known in most cases, the right to use road space is often not commodified and is, as a consequence, ill-defined.

In both the Coasian and Pigouvian transport economics literature, the concept of rights employed is that of *private property* rights, which are considered necessary to obtain well-functioning markets. Although scholars disagree on the privatisation of road infrastructure (Lindsey, 2006), which is proposed by libertarian authors such as Roth (1996) and Block (1996), congestion pricing proponents agree to market or commercialise the right to access a particular road at a particular time. As is commonly assumed in neoclassical economics, markets are the best way to efficiently allocate scarce resources, like road space, and consumers reveal their preferences through their willingness-to-pay for goods and services. There seems to be a general conviction among a considerable number of (transport) economists that market-based solutions for governments are preferable in general (Zuidhof, 2014). For example, in a World Bank working paper Hau (1992, p.8) confesses '*I am convinced of the advantages of market forces*', Anthony Downs (2004, p. 327) of the Brookings Institution states that '*As an economist, I favor market-based approaches whenever possible*' (quoted in Lindsey, 2006, p.344) and Milton Friedman (Friedman and Boorstin, 1996, p.231) expresses his belief in a free-enterprise economy arguing that we should bring '*to our highways the initiative, competition, efficiency and freedom from political manipulation that only free enterprise can provide*'.

The examples given in the previous paragraph indicate that, notwithstanding the rational stance of transport economists, the '*question of who pays what, where and when is inevitably affected by normative reasoning*' (Langmyhr, 1997, p.28). Such reasoning can involve general principles, including formal equality, sustainability, social benefit and responsibility (Langmyhr, 1997; Banister, 1993; Taylor and Norton, 2009). Principles which are associated with the preference for market mechanisms include the user-pays, freedom of choice, competition and efficiency. Market proponents differ in the weight they give to each of these aspects (Zuidhof, 2012), but the notion of private property rights is generally present, not only in the libertarian literature, but also in studies that promote market mechanisms to achieve other aims.

3. Acceptability

In order to obtain a better understanding of the congestion pricing discourse, it is necessary to look at the responses to counter-arguments and opposition (Hajer,

1995). For proponents of congestion pricing the efficiency gains and other advantages of market mechanisms are evident. However, in order to gain support in a hostile political, business and public environment more pragmatic proposals have been made (Gerrard et al., 2001; Johansson et al., 2003). The failure to convince the public and politicians continues to frustrate researchers (Verhoef, Nijkamp, and Rietveld, 1997b), leading to a large literature on the acceptability of road pricing (Gärling et al., 2008; Giuliano, 1992; Schade and Schlag, 2003), with typical titles including '*Why are efficient transport policy instruments so seldom used?*' (Frey, 2003), '*How large is the gap between present and efficient transport prices in Europe?*' (Proost et al., 2001) and '*Making urban road pricing acceptable and effective*' (Viegas, 2001).

Acceptability concerns have fostered substantial research interest in the equity dimension of congestion pricing since the '*supposedly regressive effects*' are a '*recurrent argument against congestion charges*' (Hamilton et al., 2014, p.10). As a consequence, a considerable amount of literature has been published on equity and road pricing; Levinson (2010) could find more than a hundred papers on this topic and his review revealed that the main question in this literature is whether pricing is progressive or regressive to income. The distribution of winners and losers is regularly used to explain opposition against the 'rational' idea of congestion pricing (Lave, 1994). Besides lack of familiarity, self-interest and individual preferences are considered main determinants of public opposition, especially by scholars inspired by the Public Choice School (Oberholzer-Gee and Weck-Hannemann, 2002), calls for a genuine public debate which might lead to a fundamental revision of the underlying ideas are less common.

Revenue recycling is seen as a key instrument to deal with the equity issue and with opposition in general (Goodwin, 1990; Small, 1992). There is, however, no agreement on the allocation of these revenues (Lindsey, 2006; Johansson et al., 2003). Some claim that revenues should be invested in road maintenance and construction (Roth, 1996), while others recommend to spend more on public transport (Eliasson, 2014). Evidence suggests that the introduction of road pricing schemes was only successful and acceptable when accompanied with investments in public transit (Chronopoulos, 2012). Such investments in public transport in combination with an emphasis on environmental externalities and the framing of road pricing as an anti-car measure might explain why road pricing is popular among environmentalists and 'progressive' politicians (Eliasson, 2014; Giuliano, 1992; Johansson et al., 2003). This suggests that road pricing's growing popularity is part of the ecological modernisation trend characterised by attempts to reconcile economic instruments and objectives (particularly efficiency and growth) and environmental goals (Hajer, 1995).

The role of public transport is worth some further comment since public transport occupies an ambiguous position in work on congestion pricing. In the early work reference was made to the railways where pricing, although in a suboptimal way, was accepted (Derycke, 1998). Through the application of a suitable pricing system, one could '*distribute traffic efficiently between road and rail*' (Walters, 1954, p.137). However, public transport is also seen as an alternative for '*those too old, too young, or unable to drive cars because of handicap*' (Wachs, 1989, p.1 545). Button (1993, p.52), for example, acknowledges that '*the normal market mechanism is inadequate*'

in the case of the '*old, infirm and children*'. In order to resolve the inconsistency he agrees that a subsidy can be given which reflects '*the effective demand of society for the services*', or, in other words, '*society's desire to purchase particular transport services for certain of its members*' (ibid.). Note that in this quote transport services are described in market terms (i.e. demand, purchase), and that subsidised travellers have to accept an inferior status (Anderson, 1999).

Furthermore, it is argued that transit is more efficient in high density environments since less road space is occupied per passenger (Vickrey, 1963), and many policy-makers seem to believe that investments in public transport reduce congestion by causing a modal shift from driving to using public transport. Others have challenged this claim and have argued that making transit more attractive has proven to be an ineffective strategy to reduce congestion. The idea of investing in public transport to curb congestion has also led to strategies that favour middle income travellers at the expense of lower income captive riders (Giuliano, 1992; Taylor, 2004).

This section highlighted that to deal with those who do not get the right to drive during peak hours, the congestion pricing literature emphasises the role of alternative travel options, in particular public transport, besides the standard peak spreading option. Furthermore, it is now clear that the literature, especially when dealing with the real world, employs a wide range of arguments to promote pricing, in addition to the theoretical model.

4. Need-based rights and the right to be mobile

Levine and Garb (2002) criticise mainstream congestion pricing rhetoric for its focus on mobility, and the popular focus on ease of movement. However, when accessibility is the primary goal, an alternative (pricing) framework might be more appropriate. Levine and Garb are especially concerned about the unequal distribution of accessibility among social groups, which places their work in the new narrative of accessibility (Farrington, 2007). In this context, the 'right' to use road space is derived from the accessibility needs of members of a community who need access to activities and facilities to participate fully in society (Farrington and Farrington, 2005; Preston and Raje, 2007; Hay, 1995 ; Beyazit, 2011). Congestion pricing, as traditionally conceived, might be at odds with the objective of guaranteeing accessibility for all. Indeed, as Schönfelder et al. (2007) observed, road pricing can seriously impact the structure and size of activity spaces. The present paper addresses the question 'who has the right to drive during peak hours?', which can be considered the reverse of the question 'who should be excluded from the motorway?'

Thus far we have considered two interpretations of the right to travel: (1) a service which can be bought in a market, and (2) an entitlement based on the need to access certain places and activities. A third meaning of rights in the context of congestion pricing relates to freedom and autonomy, which is perhaps the most established interpretation of the right to mobility, although this is commonly interpreted as the right to move residence (Blomley, 1994; Cresswell, 2006; Wood, 2009). Above we referred to the role of public transport, and it is argued that the presence of an alternative travel option can have a value in itself, even if you seldom or never travel

by bus or train (Langmyhr, 1997; Martens, 2006; Sager, 2006; Flamm and Kaufmann, 2006). This relates to the concept of freedom of choice and it is often mentioned that opponents feel that their right to travel would be restricted by the government when public facilities which could be used freely are to be tolled (Derycke, 1998; Eliasson, 2014; Hamilton et al., 2014; Giuliano, 1992). In other words, congestion pricing is often seen as an additional constraint on liberty, as a restriction on the right to travel. Such critique is usually associated with liberal and libertarian ideas which emphasise freedom, autonomy and ease of movement as positive attributes of car driving (Cresswell, 2006; Rajan, 2007; Sager, 2006). Nevertheless, many right-wing libertarians favour congestion pricing, but reject the idea that government should manage roads (Friedman and Boorstin, 1996). The 'right to travel' can then be described as the right of road users '*to buy the right to use road space*' from private road suppliers (Roth, 1996, p.207), which brings us back to the market-based interpretation of rights. Although issues related to negative freedom such as liberty, autonomy and surveillance are worth further attention, and are not necessarily linked to market thinking (see Anderson, 1999), this paper restricts the discussion on 'rights' to questions of inclusion. To maintain the focus of the paper on 'access rights', justice and equality-related concerns regarding the negative effects of transport (accidents, pollution) are not discussed in this article (for more on this topic, see e.g. Schweitzer and Valenzuela, 2004; Mullen et al., 2014).

5. The right to travel during peak hours: an illustration

The previous sections introduced (1) the concept of congestion pricing and the associated private property rights, (2) the connection between accessibility and need-based rights, and (3) the notion of the right to travel freely. The results of a small experiment are presented and will be used to inform the discussion in Section 6. We chose to conduct a survey to make the discussion less abstract and to generate some possible answers to the question around which our paper is centred, *who has the right to travel*. To introduce the experiment, we recall the essence of the concept of congestion pricing: the marginal private cost is below the marginal social cost so an excess of traffic enters the road; pricing confronts drivers with the difference between marginal social and private cost. Because of this, the vehicles making the least valuable trips are priced off the road. An impersonal anonymous market mechanism based on willingness-to-pay is proposed to exclude the vehicles making the least valuable trips and ensure that the last trip yields a marginal social benefit equal to its marginal social cost, thus, ensuring optimal infrastructure use. Desirable road users are those '*who would be willing to pay the additional (social) cost of* [their] *journey*', and this, according to Walters (1961, p.684) even if they fall '*into the government's class of undesirable road users*'. Contrary to the standard approach, where respondents indicate how much they are willing to pay for the right to travel during peak hours, our respondents had to choose the most desirable road user out of two hypothetical travellers. In other words, this experiment replaces the traditional self-judgment by a judgment of others in order to problematize the individualistic approach based on market norms. This is somewhat similar to the experiment of Mouter and Chorus (2016) who compared the choices of respondents in their role as consumers with the choices made in their role as citizens.

More specifically, the experiment takes further the idea of ‘desirable’ road users and makes the allocation mechanism less ‘blind’ by taking into account ‘value-laden’ characteristics at the trip level with, nevertheless, a sufficient degree of objectivity. Hence, ethnicity and gender are not taken into account, but trip purpose is. The experiment reported here thus focuses on a set of specific trip characteristics instead of general principles. As will become clear in the remainder of this paper, the discussion of trip characteristics will lead to more general questions of fairness and ethics. The following trip characteristics were taken into account:

-First, regarding *trip purpose*, both business and commuting trips are generally valued higher than leisure trips. Although ‘objective‘ estimates of the willingness-to-pay generally conclude that leisure trips would be shifted to off-peak hours, parking tariffs at popular tourist destinations suggest that the relation between willingness-to-pay and trip purpose is not univocal. We assume that many readers attach a moral value to trip purpose when reading sentences like, ‘*if the generalised price is very low, then drivers will include those who do not strictly speaking have to be in Brussels at that hour, like tourists interested in visiting museums, or shoppers*’ (De Borger and Proost, 2001, p.12). In the field of rail transport, a remarkable event was the distribution by the French railway company SNCF of 150 000 *'priorité exams*' (priority exams) stickers to students as a result of a railway strike in 2014. The idea was that fellow travellers would, out of courtesy, let students enter the trains first (RTL, 2014). This initiative illustrates how some trip purposes, i.e. taking an exam, are valued higher than others.

-A second relevant characteristic might be the *number of passengers*. While the addition of passengers generally increases the value of a trip, the carpool literature also indicates that carpooling carries a positive normative connotation, despite the existence of questionable non-sustainable ways of ridesharing (Morency, 2007).

-The third characteristic considered is *travel distance*, and it is regularly assumed that longer trips are made to activities which are, on average, valued higher compared to shorter trips (Schwanen and Dijst, 2002). Furthermore, the distances included in the experiment (10 km, 20 km and 30 km) indicate that both car and rail are reasonable alternatives.

-The fourth attribute relates to who pays for the ticket. One of the recurrent statements in the road pricing literature is that ‘*users of the transport system do not perceive the full marginal social costs of their travel decisions*’, which ‘*leads to traffic volumes in excess of what is socially desirable*’ (De Borger, Peirson, and Vickerman, 2001, p.37), as a consequence, prices should reflect ‘*the true economic cost of road use*’ (Hau, 1992, p.4). Furthermore, calls for the application of marginal cost pricing in the railway sector are at least as old as the congestion pricing literature itself (Vickrey, 1955). Finally, when employers reimburse travel costs, they assess the benefits of the trip, which might be considered an independent judgement (Verhoef, Nijkamp, and Rietveld, 1997b). For these reasons, whether one has to pay for the trip might affect the judgment of the respondent.

-Finally, it is relevant to know what drivers would do if they could not make the trip as planned; i.e. the *travel alternative*. Besides not making the trip (this option was not included in our experiment for technical reasons), rescheduling is considered a common response and contributes to the purpose of congestion pricing to spread out peak demand. The alternative is that a driver switches to another mode of transport, preferably one with a more positive image such as transit or the bicycle (on the moral framing of 'sustainable' modes of transport, see e.g. Cupples and Ridley, 2008).

The central question in our study is how the trip characteristics listed above affect 'who has the (most) right to travel during peak hours?'. Such questions may take the form of a dilemma, as in: who has the most right to travel: a commuter or a shopper? A suitable way to examine dilemmas is the application of a choice experiment. Although discrete choice modelling is the preferred tool of congestion pricing scholars to estimate the willingness-to-pay (Olszewski and Xie, 2005; Small et al., 2005; Washbrook et al., 2006), this type of model is also applied to ethical issues, for instance in studies on the prioritizing of health care interventions where respondents have to choose which of two medical interventions should be reimbursed (Luyten et al., 2013).

Two choice experiments were conducted to investigate how respondents evaluate the two challenging questions raised above: (1) 'who has the (most) right to drive during peak hours?' and (2) 'who has the (most) right to travel by train during peak hours?'. We refer the reader to the Appendix for technical details of the experiment, but before we move on, first a preliminary remark. The responses reported in the present study should not be regarded as the 'right' answer to the questions raised, even not if the sample would have been representative, although responses to questionnaires are an important source for e.g. the application of the capabilities approach (Beyazit, 2011), and are useful to inform debates.

Three groups were sampled during each experiment. Both experiments used a sample of transport experts and a control group of Belgian federal civil servants. In the 'road' experiment, a third sample consisted of administrative university staff while in the 'rail' experiment, the third sample was recruited at a conference on sustainable mobility attended mainly by (Flemish) non-expert civil society actors. Although the analysis is not based on a representative sample of the population of a region or a country, three different samples were used to gain some insight in the possible variability of opinions. There was a special focus on transport professionals since they are better informed and can hold distinct views on transport-related topics. It goes without saying that the results give no information on what is right or good.

6. Insights from the experiments

The results for the first question, 'who has the (most) right to drive during peak hours?', are provided in Figure 1 (and Table A3 in annex). In the first experiment, carpoolers and commuters are seen as having more right(s) to drive on a congested road during peak periods in contrast to single drivers and shoppers. The strongest

effect was related to the alternative: one is seen as having more right(s) to road space if the same trip by train would take twice as long (compared to a situation with road and rail having the same trip duration). The importance of public transport, the attribute with the highest χ^2 score, confirms the relevance of the second question: 'who has the (most) right to travel by train during peak hours?' (Figure 2 and Table A4 in annex).

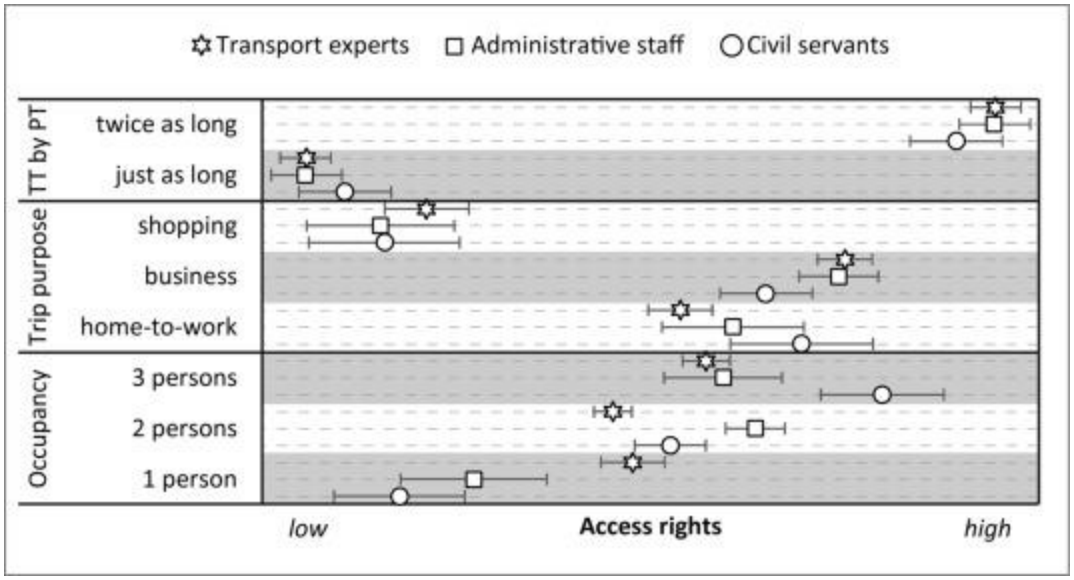

Figure 1. Means and standard errors per group and per attribute level for Experiment 1: '*who has the (most) right to drive during peak hours?*' (*Note*: TT by PT: Travel Time by Public Transport).

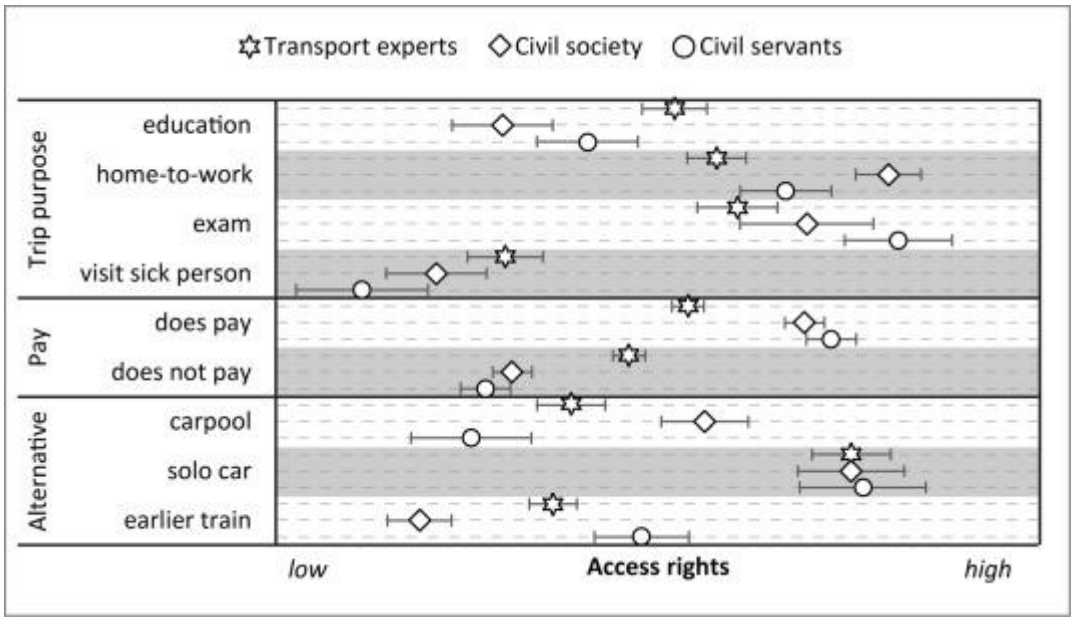

Figure 2. Means and standard errors per group and per attribute level for Experiment 2: '*who has the (most) right to travel by train during peak hours?*'

The results from the second experiment, where we asked 'who has the (most) right to travel by train during peak hours', show that transport alternative is the most important attribute. This is in line with the results from the first experiment on congestion pricing. Those who would otherwise travel by car as a solo driver are more entitled to travel by train during rush hours than those who would take the train 1 h earlier or would carpool to their destination. Regarding trip purpose, we observe that those who are on the way to visit a sick person have the least right to travel by train, while commuters and students en route to take an examination might deserve priority. Finally, those who pay for their own trip are more entitled to travel by train than those who do not; however, this attribute contributes little to the model as the likelihood ratio test (χ^2) indicates.

7. Discussion

Who has the most right(s) to travel? Both the literature review and the outcomes of the choice experiments highlight the importance of trip purpose and travel alternative. Regarding trip purpose, our results do not seem to be fundamentally different from standard willingness-to-pay studies, and the distribution of access rights seems to reflect the distinction between essential and non-essential (or discretionary) trips, where non-essential ones are to be shifted to off-peak periods. However, can we consider grocery shopping and social visits non-essential and easily shiftable in time? The '*Final Report on Transport and Social Exclusion*' by the Social Exclusion Unit (2003) seems to suggest otherwise. Qualitative research by Rajé et al. (2004, p.21) suggests that:

> '[i]*ndividuals from ethnic minorities, amongst other social groups such as women, the young and elderly, may be particularly affected by congestion charging due to a number of factors such as low income, working patterns, current high rates of social exclusion, high reliance on car-based-travel for some journeys and the non-feasibility of public transport for some journeys.*'

Both pricing as well as discrimination based on the classification of trips can disproportionally affect the most vulnerable members of society. On the other hand, the current transport system and the congestion therein have adverse consequences from an equity or inclusion perspective too.

Relatedly, commuters are seen as more entitled to travel by train than students, except students travelling to exams. But also students who travel to class are a group with, presumably, more captive users and fixed schedules. This brings us back to the critique that public transport policy tends to favour so-called choice riders over transit dependents (Garrett and Taylor, 1999). The finding that those who would otherwise travel alone by car have the most right to enter the train corroborates the idea held by many policy makers that public transit will, and has to, attract (former) car drivers (Eliasson, 2014; Giuliano, 1992; Taylor, 2004). Since drivers are hard to convince, considerable effort by means of giving priority is required to induce a modal shift towards public transport. However, this might be at the expense of captive rail-travellers who, as the estimates suggest, would have to take a train 1 h earlier. In other words, the logic is that rail travellers make way for newcomers who previously

travelled by car. A similar ethical issue is discussed in the context of the Dutch peak avoidance ('Spitsmijden') project where '*those already travelling outside the peak or by non-auto modes will not be able to earn the reward, whereas those who shift to these travel options are rewarded*' (Ben-Elia and Ettema, 2009, p.75). In its fiercest form, this is a kind of moral blackmail, i.e. if a claimed right is not granted, the claimant will do -what is perceived to be- a 'wrongful' act (car driving).

The opinions of respondents are, however, more heterogeneous than the model results suggest. We found that participants were often reluctant to make a choice between the two options in the second experiment. Several respondents remarked that everyone has equal rights or that it is not for them to decide. Contrary, we did not observe much abstention in the first experiment. This observation suggests that participants belief that public transport should be regarded as a public service that should not exclude anyone. This is reminiscent of other surveys where respondents refused to give a response since they considered the way of valuing inappropriate (Anderson, 1993). The question is whether the impersonal, anonymous market mechanism is more acceptable, and if so, whether this is due to the invisibility of the consequences.

Furthermore, a closer look at the individual level estimates of the rail choice model reveals that 14 participants (out of 88) value 'visiting a sick person' higher than other trip purposes. Likewise, 16 participants did not value solo driving highest, but, among others, those who would take a train 1 h earlier. The significant differences across samples in their valuation of carpooling might be another indication of ambivalence. Although the questionnaire explicitly asked respondents to give their personal opinion, we cannot eliminate the possibility that they displayed strategic behaviour and had higher level goals in mind.

A wide variety of opinions exist regarding the fair distribution of access(ibility) and mobility, and several, potentially competing, ethical principles are involved such as responsibility, sustainability and formal equality. Such diversity is a regular feature of an ethical debate and in this paper we applied a technique commonly used to explore ethical issues, namely a survey in which respondents are confronted with dilemmas. But what can we conclude about congestion pricing from our analysis?

First, normative reasoning could be taken more seriously than in the conventional account of congestion pricing. According to Eliasson (2014, p.22), the congestion charging debate in Stockholm '*moved from the technical-rational domain to the moral domain and back again*'. The move to the moral domain was instrumental to gain political support, and he portrays normative reasoning as emotional, politicized and characterised by negative sentiments, which stands in contrast to the rationality and efficiency of expert knowledge. However, the implementation of congestion pricing is a question of justice. Moreover, it is a question of surveillance, freedom and control. Such questions require public reasoning, debate and discussion which are deemed essential for 'real' democracy (see e.g. Anderson, 1993; Sen, 2009), and as a consequence, experts cannot asses the quality of debate solely by how well the outcome corresponds to their ideal of marginal social cost pricing, neither can they determine what is 'right' on the basis of a survey.

Second, while respondents in traditional willingness-to-pay studies evaluate their own situation, we can also learn from people's judgements of others. In our experiments participants were not ignorant about their current position in the transport system, i.e. they were not behind a Rawlsian 'veil of ignorance', but were less directly involved in the choice situations than in willingness-to-pay surveys. It would be interesting to devote more attention to tools based on the idea of an 'independent' and 'impartial' observer in studies on the allocation of mobility and accessibility.

Third, by focusing on the desirability of a trip, the emphasis was on the outcome of the allocation mechanism and thus not on the perceived fairness of the mechanism itself. The latter was the subject of a study in Zurich reported in Frey (2003) which indicates that the current 'first come, first served' allocation system was preferred over government intervention and pricing. In contrast, respondents in a survey in Stockholm, Helsinki and Lyon viewed pricing and queuing as fair, and they considered a lottery and a system in which an authority determines 'needs' as unfair (Hamilton et al., 2014). As the literature review shows, congestion pricing arguments are permeated with moral values and concepts. Choice, freedom and competition are seen as virtues of market mechanisms in general (Zuidhof, 2012) and work-related 'essential' trips are considered more desirable than shopping journeys. Hence, it is interesting to discuss how the outcome of a 'blind' allocation mechanism corresponds to the desired outcome, and whether pricing is seen as a means rather than an end (Owens, 1995).

Fourth, one of the attributes in the second experiment was whether or not someone has to pay the travel expenses, and this seems to be a minor issue. One can only speculate about the underlying reasoning of respondents, nevertheless, one might have expected a stronger effect in a context where it is often assumed that users should pay and should be confronted with the true cost. It is up to further research to determine in how far market norms are considered an acceptable basis for transport policy, and to what extent transport is seen as a political good, which does not involve the evaluation of individual market choices, but democratic dialogue about what we owe each other (Anderson, 1993).

Finally, the current study has approached fairness and congestion pricing predominantly from an individual perspective, although the emphasis was on judgments about others. However, travel can be a highly social activity (Goodman et al., 2014) and congestion pricing is also a political project (Chronopoulos, 2012; 2015; Rooney, 2014; Vanoutrive, 2017). The history of the concept shows that it can be understood as an example of '*the active construction of markets, both real and imagined, as a means of governing social affairs*' (Zuidhof, 2014, p.160). This creation of a new political reality also involves the construction of congestion as a problem (Weinstein, 2006) and the production of a particular type of automobile (or transit) subject (Paterson, 2007): well-informed mobile persons who, when confronted with the 'true cost' of travel, make deliberate choices between various travel options on the basis of their willingness-to-pay. The relationship between ethics and the political projects of congestion pricing is worth further investigation, but is outside the scope of the present paper.

8. Conclusion

Congestion pricing discourse is permeated with normative issues. More specifically, some trips are considered more essential than others, and what you would do when priced off the road seems to affect your right(s) to travel during peak hours. Congestion pricing, as commonly conceived, distributes road space through an impersonal and anonymous allocation mechanism based on the willingness-to-pay of the person who travels. This view builds on the concept of private property rights, and this paper challenges the traditional framework by raising the question 'Who has the most right to travel during peak hours?'. To make the allocation mechanism less blind, respondents in a survey were confronted with dilemmas about who should be granted the right to travel during peak hours. This approach offers a new perspective on the allocation of mobility since a self-judgment based on individual preferences is replaced by judgments of others.

Our discussion suggests the following policy implications. Debates on congestion and accessibility need to be broadened to add other perspectives to the individualistic market-inspired approach that dominates the literature and policy documents. In particular, a relational, more social perspective on transport seems more valid given the social nature of mobility. As a consequence, transport might be considered a political good and a genuine democratic debate is the best way to deal with accessibility-related issues. We cannot predict the outcome of such a debate, but we believe that it is logical to adopt a relational/social perspective, which involves a change in discourse as well. For example, we can replace the adage that people should be confronted with the true costs of their travel, with the statement that people should be confronted in a respectful manner with the other people involved in their travel.

Finally, we offer some suggestions for future research. It would be interesting to ask participants of a focus group or survey their opinion on the outcome of willingness-to-pay studies or real-life traffic situations with and without congestion charging. Further research can also shed light on the underlying reasoning of respondents in surveys such as those discussed in this paper. Furthermore, a more detailed analysis of the different definitions and notions of rights employed in both the academic literature and policy documents might be interesting.

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Appendix.

We conducted two choice experiments and three groups were sampled during each experiment. A list of email addresses of experts was compiled using public websites were, among others, experts certified to carry out transport analyses in environmental impact assessments are listed. These experts (n = 178) were invited by a personalised email to fill in the questionnaire online (there were four and a half months between the 'road' and the 'rail' questionnaire and in the first questionnaire eight experts asked not to be contacted again). A paper version of the 'rail' survey was distributed at a conference attended mainly by (Dutch) transport professionals. Participants in the other samples received the questionnaire on paper from the authors or a colleague. Data collection took place during the summer of 2014 for the experiment on roads and during the last quarter of 2014 for the experiment on rail. A summary of sample characteristics can be found in Table A1.

Table A.1. Sample characteristics.

Experiment 1: 'who has the (most) right to drive during peak hours?'

		adm. staff	**civil servants**	**transport experts**
Method		*paper*	*paper*	*online*
Period		Jul/14	*Aug/14*	*Aug/14*
Sample size		*n = 20*	*n = 19*	*n = 53*
Gender	male	0.35	0.42	0.75
	female	0.65	0.58	0.25
Age (yr)	average	42.7	42.7	38.2
Car use	low	0.15	0.11	0.21
	medium	0.60	0.79	0.75
	high	0.25	0.11	0.04
Train use	low	0.40	0.11	0.45
	medium	0.35	0.89	0.47
	high	0.25	0.00	0.08

Experiment 2: 'who has the (most) right to travel by train during peak hours?'

		civil servants	**civil society**	**transport experts**
Method		*paper*	*paper*	*online + paper*
Period		Nov/14	Dec/14	Nov–Dec/14
Sample size		*n = 19*	*n = 26*	*n = 49*
Gender	male	0.32	0.69	0.78
	female	0.68	0.31	0.22
Age (yr)	average	38.2	50.7	42.0
Car use	low	0.05	0.00	0.00
	medium	0.37	0.69	0.72
	high	0.58	0.31	0.28
Train use	low	0.05	0.48	0.14
	medium	0.21	0.44	0.59
	high	0.74	0.08	0.27

In our experiments, participants were shown respectively 12 or 8 choice situations with 2 options (see below). In the first experiment, they were asked which of the two cars had the most right to travel during peak hours. In the second experiment, the same question was asked for a train passenger. For each experiment, one example of a choice situation is shown in Table A2 (original in Dutch), together with an overview of the different possible levels of the attributes. An escape option was not included, though depending on the survey mode participants were able to skip choice situations or add comments.

Table A.2. Structure, attributes and levels of the experiments

Experiment 1: example:

Who has the most right to travel during peak hours?	
Two persons travel by car to **visit customers**.	**Three persons** travel by car to **go shopping**.
Trip distance is **20 km** and trip duration would be **twice as long** by train.	Trip distance is **30 km** and trip duration would be **similar** by train.

Experiment 1: Attributes and levels

Vehicle ridership	**Trip purpose**	**Travel distance**	**Trip duration by train**
1 person	Commute	10 km	Just as long
2 persons	Visiting customers	20 km	Twice as long
3 persons	Shopping	30 km	–

Experiment 2: example:

Which person has the most right to travel by train?	
A person will **visit a sick person** and does **not have to pay** the travel expenses.	A person will **take an examination** and **has to pay** the travel expenses.
Alternatively, the person would take **a train 1 h earlier**.	Alternatively, the person would **carpool**.

Experiment 2: Attributes and levels

Alternative	**Pay**	**Trip purpose**
Carpooling	Ticket paid by the traveller	Commuting
Solo driver	Ticket not paid by the traveller	Taking classes
Train, 1 h earlier	–	Taking an exam
–	–	Visiting a sick person

The attributes and levels were chosen based on the factors discussed in the main text and on the technical constraints imposed by discrete choice experiments. The most important constraint is related to the independence between the individual attributes and their levels, i.e. all combinations of levels from the attributes in the experiment should be meaningful.

The aim was to design an experiment with a limited number of choice situations and suitable for small samples. In order to improve the efficiency of the experiment, we used a *D-optimal design* with prior expectation about the preferences of our respondents (Rose and Bliemer, 2009). In the D-optimal design we added assumptions on the means of the posteriors. For instance, we assumed that the trip purposes 'commuting' and 'exam' would be more important than 'visiting a sick person' and 'taking classes'. The design has a local optimum, as the prior covariance matrix was neglected. The designs were generated in JMP Pro 11® using 500 random start values. In order to obtain stable results we used 24 and 16 choice situations respectively. These choice situations were divided in two blocks, as a consequence, we offered only 12 or 8 situations to a single respondent.

For both experiments we estimated a mixed multinomial logit model (Table A3 and Table A4), which incorporates the fact that multiple choice observations come from a single individual. The models are estimated using a hierarchical Bayesian estimation procedure in *ChoiceModelR* (Rossi et al., 2005; Sermas, 2015 ; Train, 2009). Because of the small sample sizes we did not ran the models for the different samples separately, instead we combined the samples in one pool while adding dummy variables for sample membership (evidently, the data from the two experiments were estimated separately). In total we used 10 000 iterations per model, though only the last 2500 draws were used for the actual estimates (7500 burn-in iterations). The outcome of these models is often called '(marginal) utility', or when a monetary attribute is included, 'willingness-to-pay'. In our case, the outcomes are interpreted as 'access rights'. Like marginal utility these access right are relative, and only meaningful in comparison to other estimates of the same model.

The overall model performance is excellent. In about 92% of the choice situations the model estimates of the first experiment offer a correct prediction of the actual choice made in the experiment. This is 94% for the second experiment. The estimates for the different levels of the attributes stabilised after only a few hundred iterations. In Experiment 1 we observe one exception to this rule, namely for 'trip distance'. No reliable results could be obtained for this attribute (with 10 000 iterations) and is therefore not included in Fig. 1.

Table A.3. Model results for Experiment 1: ‘who has the (most) right to drive during peak hours?’

N.obs.		n (situations)	Civil servants 19 (228)		Adm. Staff 20 (240)		Experts 53 (636)	
Attribute	**χ^2**	**level**	**mean**	**s.d.**	**mean**	**s.d.**	**mean**	**s.d.**
Number of persons	1683	1 person	−6.46	7.3	−4.55	8.4	−0.46	6.0
		2 persons	0.50	4.0	2.69	3.4	−0.97	3.6
		3 persons	5.96	6.9	1.86	6.8	1.43	4.4
Trip purpose	2 434	commute	3.89	8.0	2.12	8.2	0.76	6.0
		business	2.97	5.2	4.84	4.5	5.00	5.1
		shopping	−6.86	8.5	−6.95	8.5	−5.76	7.9
Travel distance	27	10 km	1.78	1.9	−0.69	2.1	1.11	1.6
		20 km	3.20	3.1	2.66	3.3	2.56	3.2
		30 km	−4.98	4.9	−1.98	5.3	−3.67	4.3
Public transport	3 212	just as long	−7.86	5.2	−8.85	4.1	−8.88	4.7
		twice as long	7.86	5.2	8.85	4.1	8.88	4.7

Table A.4. Model results for Experiment 2: ‘who has the (most) right to travel by train during peak hours?’

N. obs.		n (situations)	Civil servants 19 (152)		Civil society 22 (169)		Experts 47 (372)	
Attribute	**χ^2**	**level**	**mean**	**s.d.**	**mean**	**s.d.**	**mean**	**s.d.**
Transport alternative	1 014	early train	−0.44	5.4	−6.26	3.9	−2.76	4.3
		solo car	5.35	7.2	5.05	6.5	5.05	7.1
		carpool	−4.90	6.9	1.21	5.3	−2.29	6.1
Pay	45	does not pay	−4.53	2.9	−3.83	2.4	−0.77	2.9
		does pay	4.53	2.9	3.83	2.4	0.77	2.9
Trip Purpose	1 560	visit sick person	−7.77	7.5	−5.82	6.2	−4.01	6.8
		exam	6.29	6.1	3.88	8.2	2.07	7.2
		commute	3.34	5.2	6.02	4.0	1.52	5.3
		taking class	−1.86	5.8	−4.09	6.2	0.42	5.8

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