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Do spatial climate messages increase pro-environmental engagement? Evidence from a survey experiment on public transport

Victor von Loessl[a] and Eva Weingärtner[a] and Sonja Zitzelsberger[a]

[a]Institute of Economics, Nora-Platiel-Str. 4, University of Kassel, 34109 Kassel, Germany

ABSTRACT

Using a survey experiment among a special sample composed of art house cinema visitors, we investigate whether spatial climate messages increase subjects' willingness to pay for an inclusion of public transport fares in cinema tickets as well as their willingness to use public transport in case such a combined ticket is introduced. Based on previous findings, we expect emphasizing the positive impact of public transport usage on the local level to have a greater effect on subjects' preferences for public transport than a message that highlights the global consequences. Contrary to these expectations, our results show that the global treatment increases subjects' willingness to pay compared to the local treatment and the baseline. Both treatments increase subjects' willingness to use public transport. Conducting a sub-sample analysis, we find that also the local message increases the willingness to pay for a combined ticket among respondents who lack a financial interest as they already own a season ticket for public transport.

JEL classification: C93, Q51, R41

KEYWORDS

Climate Change Communication; Contingent Valuation; Pro-Environmental Behaviour; Non-Monetary Preferences; Public Transport; Survey Experiment

CONTACT Victor von Loessl. Email: vonloessl@uni-kassel.de

1. Introduction

Suppose you wanted to convince your customers to arrive by public transport rather than by car, would you emphasize the local or the global climate benefits of public transport? As people generally care more about what is close to them (e.g Trope and Liberman 2010; Spence, Poortinga, and Pidgeon 2011; Sparkman, Lee, and Macdonald 2021), intuition suggest that the local argument will be more effective. This is also supported by the majority of research in this area (e.g. Scannell and Gifford 2011; van der Linden, Maibach, and Leiserowitz 2015; Jones, Hine, and Marks 2016).

Trope and Liberman (2010), for example, argue that bringing a problem closer to someone, i.e. reducing the psychological distance, increases their willingness to take action. Psychological distance is thereby defined as 'a cognitive separation between the self and other instances' and can be differentiated in at least four dimensions (Baltatescu 2014, p. 5145). These include the spatial, temporal, social, and hypothetical dimension (Trope and Liberman 2010; Baltatescu 2014), with the latter referring to the degree of certainty that an event will happen (Jones, Hine, and Marks 2016). Within this concept, a reduction in the distance in any of the dimensions reduces the overall psychological distance (Trope and Liberman 2010; Sacchi, Riva, and Aceto 2016). Consequentially, emphasizing local effects of climate change to reduce the psychological distance is frequently suggested as a promising tool to increase public engagement in environmental problems (e.g. van der Linden, Maibach, and Leiserowitz 2015; Jones, Hine, and Marks 2016).

In fact, several studies have shown that highlighting local consequences of climate change is more effective in stimulating environmental engagement than describing its effects on more distant areas (e.g. Spence, Poortinga, and Pidgeon 2011; Scannell and Gifford 2011; Jones, Hine, and Marks 2016). People are usually also willing to pay more for environmental or mitigation projects the closer these projects are located to them, a finding often referred to as *distance decay effect* (e.g. Schwirplies et al. 2019; Dardanoni and Guerriero 2021; Johnston, Besedin, and Holland 2018; Andrews, Ferrini, and Bateman 2017).

However, there are also a few studies that find no difference between a local and global message (e.g. Busse and Menzel 2014; Mir et al. 2016) or that even find the opposite effect (e.g. Grinstein and Riefler 2015). Therefore, the presumption that a message with a local reference always outperforms a global message in terms of increasing environmental engagement is too simplistic (Leviston, Price, and Bishop 2014; Loy and Spence 2020; Brügger et al. 2015). For example, Sacchi, Riva, and Aceto (2016) show that the negative relation of psychological distance and pro-environmental attitudes is weaker for individuals who think holistically compared to those in a state of narrowly focused, analytic thinking. Moreover, Grinstein and Riefler (2015) provide evidence that a global message is actually superior to highlighting local climate effects in evoking pro-environmental intentions for individuals with a highly cosmopolitan orientation. This suggests that there is at least heterogeneity in the effectiveness of spatial climate messages.

We add to this literature by presenting results from a survey experiment on the willingness to pay (WTP) for the compulsory inclusion of public transport in cinema tickets and the intended usage of public transport if such a combined ticket were introduced. The experiment was conducted in Kassel, Germany. We differentiate between a baseline without additional information, and two treatments with a local and a global climate message, respectively. The switch from individual road traffic to public transport presents itself as a suitable area to study the role of spatial distance in environmental engagement. Urban road traffic causes a variety of negative effects on the local level such as land use conflicts, congestion, air and water pollution and health hazards due to accidents or physical inactivity (Albertsson and Falkmer 2005; Khreis et al. 2016; Litman and Burwell 2006; Miller et al. 2016). At the same time, emissions from urban traffic contribute to global climate change. In 2018, the transport sector was accountable for approximately 25 % of global CO_2 emissions, with private car usage representing about 11 % of the total emission output alone (IEA 2019). Urban road traffic is thus associated with negative externalities on the local and global level (Parry, Walls, and Harrington 2007).

In Germany, media attention on the global climate crisis as well as on health risks due to local air pollution have resulted in increased awareness of the negative side-effects of road traffic (Mahl et al. 2020). In the meantime, public transport providers are increasingly highlighting their environmental friendliness to attract customers.[1] Moreover, many leisure facilities, like concert halls, theaters, stadiums, or fairs, have integrated public transport passes into their admission tickets. The combined ticket usually provides public transport access at a lower price, can simplify its use, and can increase the salience of public transport as a viable mode of transportation.[2] For example, the introduction of mandatory bus passes at reduced fares for students at universities in the United States and Canada has significantly decreased individual car drives to the campus (Heath and Gifford 2002).

Together with a cinema operator who contemplated the introduction of a combined cinema and public transport ticket, we assessed the cinema visitors' WTP for the inclusion of public transport in all regular movie tickets. Furthermore, we analysed their stated future public transport usage for cinema visits in case such a combined ticket were introduced. While the baseline treatment did not convey any spatial message, the local treatment drew attention to the positive effects on the urban climate from increased use of public transport, and the global treatment pointed out the benefits for global climate change mitigation.

Contrary to most results in the literature, we find the global message to be effective in increasing people's WTP for public transport compared to the local treatment and the baseline. Both the local and the global treatment significantly increase the stated willingness to use public transport in the future. Furthermore, a substantial share of those who own a season ticket for public transport still exhibit a positive WTP. We find that these people, who do not benefit financially from the combined tickets,

[1] For example in Munich, where a campaign from 2020 stated that 'every passenger is a protector of the climate' (https://www.mvg.de/mobilitaetsmacher.html, accessed 20.07.2021, German only) or in Hamburg, where the slogan 'Get on board with climate protection' (https://steigeinbeimklimaschutz.de/, accessed 20.07.2021, German only) is used as part of the larger campaign of the German federal railroad 'This is Green' from 2017 (https://gruen.deutschebahn.com/en, accessed 20.07.2021).

[2] The Rhein-Main Transport Authority advertises combined tickets as 'easy on the purse and easy on the nerves'. They connect 'football fans, opera lovers, dancing queens, watersports junkies, rock chicks and sports fanatics' because 'they all use public transport to get to the match or take their seats at the opera' (`https://t1p.de/soju`, accessed 04.11.2020).

react to both messages, in particular the global one. This suggests that parts of the population perceive global climate change mitigation as an important motivation for their choices, independent of their individual financial motives.

The remainder of the paper is structured as follows: We give an overview of the related literature in Section 2 and explain the experimental design in Section 3. In Section 4, we present the results, which we discuss in Section 5. Finally, we conclude the paper in Section 6.

2. Literature

In classic economic theory, perfect rationality is assumed to guide people's choices. However, for long it is known that the *decision frame* in which a problem is portrayed can be decisive for the response to an otherwise identical problem (Tversky and Kahneman 1981). Several studies have shown that framings and informational messages can alter attitudes, preferences as well as behaviour in the environmental context (e.g. Aasen and Vatn 2018; Schwirplies et al. 2019; Toledo 2016; Muller, Lacroix, and Ruffieux 2019). In this respect, local as well as global climate messages have been found to increase stated pro-environmental behaviour compared to a baseline (e.g. Scannell and Gifford 2011; Orset 2019).

Moreover, most literature on climate change communication suggests that highlighting local aspects of climate change is more effective in terms of raising awareness and inducing engagement than emphasizing impacts on more distant areas or on the global level (e.g. Jones, Hine, and Marks 2016; Spence, Poortinga, and Pidgeon 2011; Scannell and Gifford 2011). Relatedly, literature analysing the influence of actual distance to the pro-environmental action consistently shows a distance decay effect, that is a negative correlation between preferences for pro-environmental engagement and spatial distance to the project implementation site. These findings relate to both stated preferences (e.g. Schwirplies et al. 2019;

Dardanoni and Guerriero 2021; Olsen, Jensen, and Panduro 2019; Yao et al. 2014; Bateman et al. 2006; Andrews, Ferrini, and Bateman 2017) as well as revealed preferences (Löschel et al. 2021). For example, Löschel et al. (2021) show in a field experiment conducted in China that at equal prices the demand for local CO_2 certificates is significantly higher than for CO_2 certificates from a distant province. They conclude that a substantial part of voluntary climate action is driven by concerns for local co-benefits, such as a reduction in local air pollution. Deacon and Schläpfer (2010) find that local co-benefits of a river restoration program in Switzerland were crucial for the success of a referendum vote on its implementation. It is thus conceivable that local messages increase the salience of such co-benefits and thereby increase pro-environmental behaviour.

The survey of Uzzell (2000) provides another potential reason for the greater effects of local messages found in most studies. While respondents in Australia, England, Ireland and Slovakia considered environmental problems at the global level as more serious, they also felt less responsible and more powerless when confronted with global instead of local environmental problems. Feelings of powerlessness in turn have been found to have negative effects on pro-environmental behaviour (Aitken, Chapman, and McClure 2011).

Laboratory experiments use so-called multilevel public goods games to study discrimination between larger *global* groups and smaller *local* groups, with the latter being fully embedded in the former. A central result of these experiments is that local group identity is an important determinant for higher contributions to the local good (Chakravarty and Fonseca 2016; Blackwell and McKee 2003). In this respect, Fellner and Lünser (2014) further show that local groups that offer social feedback are favoured over global groups that do not, even if the latter provide higher average per capita returns. Contrary to the aforementioned studies, Gallier et al. (2019) do not find differences in cooperation with respect to a local and a regional public good in an artefactual field-experiment.

Also in the realm of stated pro-environmental engagement, a few studies find no difference between a local and a global climate perspective (e.g. Busse and Menzel

2014; Orset 2019). For instance, Mir et al. (2016), who provided a sample of Tehran students with information about air pollution either in Tehran or in Beijing, find that the location, local or distant, makes no difference in the willingness to use environmentally friendly transport options. Investigating a local and a global message frame in the context of purchase intentions for organic chocolate bars, Grinstein and Riefler (2015) find that the global message is actually more effective for individuals with a cosmopolitan orientation. Relatedly, Ahtiainen et al. (2014), who evaluate a contingent valuation (CV) conducted in eight European countries, find heterogeneous relations between spatial distance and respondents' WTP for the reduction of eutrophication in the Baltic Sea. While in some countries the usual distance decay effect is found, in others there is no significant relation and for the German sample the relationship is actually positive.

We add to the outlined literature in several ways. In particular, we investigate the effectiveness of a local and a global message on pro-environmental behaviour in the context of preferences for public transportation. We are not aware of any other experiment doing so. Most closely related is the paper by Mir et al. (2016). However, the authors did not include a baseline and only considered behavioural intentions. In contrast, we differentiate between financial and behavioural intentions. That is, we asked respondents for their WTP for public transport as well as their intended willingness to use (WTU) public transport in the future. While those two measures are likely highly correlated, they might be driven by different factors. For example, respondents might hold option or non-use values leading to a positive WTP even without the intent to increase usage. Conversely, in the experiment of Menegaki et al. (2009), the labeling of recycled water as 'treated wastewater' significantly reduced farmers' stated WTU the water but not their WTP for it. Finally, our sample includes individuals holding a season ticket for public transport. These individuals do not have any financial incentive to pay for the inclusion of public transport in their cinema ticket, but may be willing to contribute to making public transport more accessible for others. That allows us to additionally investigate our treatments for people without direct monetary benefits. Thereby, we extend related studies from the transport domain,

such as Spindler, Dehnavi, and Wirl (2019), who find that respondents who have not used a bike sharing system in Vienna in the past 12 months on average still express a considerable WTP for the public provision of it.

3. Experimental Design and Predictions

The experiment took place during three consecutive weeks in January and February 2020 in an art house cinema in the German city of Kassel.[3] Kassel is a medium-sized city in the centre of Germany and has long been known as particularly car-friendly. With the city largely destroyed in World War II, it was rebuilt as an automotive city to facilitate and encourage the use of private transport (Lüken-Isberner 2017). In 2019, Kassel ranked 8th place in terms of the relative amount of time lost in road traffic in Germany (TomTom 2020). Despite its central location with good public transport connection, 69 % of our respondents arrived at the cinema by car. The timing of the experiment was especially useful as the comfort of traveling by car is particularly prominent during the cold season.

We restricted the survey to visitors of all shows of one specific movie to avoid surveying the same person multiple times. The selected movie, 'Lindenberg! Mach dein Ding', portraits the childhood, youth and start of the professional career of the musician Udo Lindenberg. It appeals mostly to a more mature generation, which is reflected by the mean age of 58 years in our sample. Moreover, visitors of that art house movie are mainly highly-educated individuals that support green and left-wing policies and express high concerns about climate change.[4]

Upon entrance to the foyer, visitors were asked to participate in a short survey conducted by the University of Kassel and the cinema operator about the means of transportation to the cinema. The survey was conducted face-to-face by a group of graduate students using tablets. The students were instructed to dress in modest colours, wear name tags and read the instructions aloud from the tablets so that they

[3]The period ended over one month before the WHO declared COVID-19 a pandemic on March 11, 2020 (WHO 2020) and Germany introduced its first measures to contain the pandemic.

[4]Two previous surveys provided us with data about the usual visitor of this art house cinema (Dannenberg, Johansson-Stenman, and Wetzel 2021).

were all using the same wording. Participation was completely voluntary and about 38 % of visitors agreed to participate and finished the survey.[5]

After a few initial questions about the frequency of cinema visits and the usual means of transportation utilized to get there, the participants were asked whether they would be willing to pay more for their cinema tickets if the journey with public transport were to be included. In case of a positive reply, the participants were additionally asked to state their maximum WTP. To this end, we employed a CV approach with a payment card format. The CV approach is a popular survey method to measure peoples' WTP for non-market goods, including goods that are not available at the time (Oerlemans, Chan, and Volschenk 2016).[6] In the payment card format, all respondents choose values from the same predefined and ordered list. Among the possible elicitation formats, payment cards have several advantages. By offering a range of different values to choose from, the elicitation mitigates biases due to default setting or excess acceptance of high-end values (Drichoutis, Lusk, and Pappa 2016; Oerlemans, Chan, and Volschenk 2016; Braun, Rehdanz, and Schmidt 2016). To elicit respondent's maximum WTP we used a scale from €0.25 to €5 in €0.25 increments. While choosing this range, we faced a trade-off in the choice between a broad range to cover all possible choices and a narrow range to keep it simple and easy to understand. The chosen upper limit represents 83 % of the costs of a return-trip with public transport inside the city borders.

Cinema staff asked prospective participants to take part in the survey, because the cinema group actually contemplated the introduction of a combined ticket. In addition, we stated that 'Some cinemas consider to offer their tickets in combination with a public transport ticket.' as introductory sentence to the CV question. We are thus confident that respondents perceived at least a small probability that their replies were policy consequential.[7] As 95 % of respondents visit the cinema group on average

[5]Due the fact that most visitors arrived in groups shortly before the start of the movie, we were not able to ask all visitors for their participation. Although we do not have numerical evidence, the impression of the surveyors was that very few people who were asked to participate declined the invitation.

[6]For a discussion on the advantages and disadvantages of the CV method see for example McFadden and Train (2017), or Oerlemans, Chan, and Volschenk (2016).

[7]Policy consequentiality denotes a condition where respondents perceive that their answers might affect a relevant outcome. Payment consequentiality denotes a condition where respondents expect at a chance greater than zero that they actually will have to pay for the valued good (Herriges et al. 2010).

more than once a year, the introduction of a combined ticket would result in respondents having to pay the public transport premium for every visit, thereby also leading to payment consequentiality.[8] The perception of payment or policy consequentiality significantly reduces the hypothetical bias (Penn and Hu 2018), which constitutes a challenge in all stated preference surveys.[9] Furthermore, different promoters in Kassel already offered combined tickets, for example the local soccer and handball teams or a wine shop for its tasting. Schläpfer and Fischhoff (2012) show that such product familiarity is also able to mitigate the hypothetical bias.

We implemented three treatments in our survey. In the baseline, only the introductory sentence was read out before the elicitation of the WTP for a combined ticket. In the local treatment, an additional reference to the urban climate was made preceding the baseline text: 'The inner city of Kassel suffers from too much car traffic. The urban climate would benefit from more people using busses and trains.' The global treatment instead preceded the baseline text with a note on the global climate: 'The world suffers from global climate change. The global climate would benefit from more people using busses and trains.' The treatments were varied across days to avoid any potential confusion among visitors or the surveyors. Each treatment took place exactly once on a Monday, which is the day with reduced prices, and several times a week across all three weeks.

We elicited the stated WTP of respondents as our first outcome variable (WTP). Additionally, we asked for the anticipated proportion of public transport usage for future journeys to and from the cinema in case a combined ticket were to be introduced for all cinema tickets. This indicated willingness to use public transport in the future is our second outcome variable (WTU).[10] The whole survey was completed within few minutes.[11]

[8] Kabaya (2020) show that higher perceived payment consequentially reduces respondents WTP, whereas scripts targeting policy consequentially significantly increase respondents WTP. Therefore, they argue that both, payment and policy consequentiality are needed for revealing true preferences.

[9] On hypothetical bias and its mitigation, see for example the studies and discussion by Loomis (2011); Herriges et al. (2010); Vossler and Watson (2013) or Penn and Hu (2018).

[10] 32 respondents indicated that their use of public transport would decrease or even drop to zero in case a combined ticket is introduced. We suspect that they misunderstood the question and stated their intended additional usage. As we cannot be sure that this explanation is correct, we excluded these observations. Our main results are unaffected.

[11] The translated survey form can be found in Appendix B.

Given the aforementioned results from the literature, we expected a higher WTP in the local and global treatment compared to the baseline without a climate message. Though contested, most articles did find a local message to be more effective than a distant or global one. We thus additionally hypothesized that the WTP would be higher in the local than in the global treatment. Although it is conceivable that treatment effects differ for our second outcome variable *WTU*, the previous literature did not provide us with evidence about the likely direction of the difference. We therefore predicted the same pattern for our second outcome variable.

4. Results

In total, 644 respondents, of which about 57 % are female, participated in our survey. Most of our participants are regular visitors to this particular group of art house cinemas, with a mean of 10 visits per year. Two thirds (69 %) stated having arrived by car[12], followed by public transport (17 %), walking (9 %) and riding a bike (5 %). Asked about the general use of public transport to reach the cinema, more than half of our visitors stated to never use public transport, whereas about a quarter stated using it at least 50 % of the time. 27 % of respondents own a season ticket for public transport, which eliminates all monetary incentives to pay for the inclusion of the public transport fare in the cinema ticket. Some of the elicited variables vary across treatments. We therefore include all elicited variables as controls in the subsequent regression analyses.[13]

[Table 1 about here.]

Table 1 shows the key summary statistics of the main outcome variables by treatment. Figure A.1 in the appendix illustrates their distribution. Using two-sided non-parametric tests, we find that the overall mean WTP is significantly higher in the global treatment (€1.88) compared to the baseline (€1.38, Mann-Whitney-Wilcoxon (MWW), $p < 0.001$) and also compared to the local treatment (€1.47, MWW,

[12]Including three respondents who stated having arrived by an electric car.

[13]The summary statistics of all elicited variables by treatment and test results for equality across treatments can be found in Table A. 1 in the appendix.

$p = 0.008$). This also holds if we consider the share of respondents with a positive WTP or the WTP among only those respondents with a positive WTP, i.e. the conditional WTP. With 70 %, the share is significantly larger in the global treatment than in the baseline (56 %, Pearson $\chi^2(1)$, $p = 0.004$) and also larger than in the local treatment (61 %, Pearson $\chi^2(1)$, $p = 0.062$). The conditional WTP is €2.68 in the global treatment, which is significantly higher compared to the baseline (€2.44, MWW, $p = 0.074$) as well as compared to the local treatment (€2.39, MWW, $p = 0.048$). The differences between the baseline and local treatment for the absolute WTP and its components are small and not statistically significant. The results are similar for the WTU. Intended future usage is significantly higher in the global treatment (58 %) compared to the baseline (43 %, MWW, $p = 0.000$) and the local treatment (48 %, MWW, $p = 0.016$). The difference between the local treatment and the baseline is not statistically significant ($p = 0.206$).

In line with Needham and Hanley (2020), who use a CV survey to analyse the effect of perceived policy consequentiality on the WTP for a flood defence scheme, we employed a linear Cragg Hurdle model to investigate the treatment differences in more detail.[14] The Hurdle model captures the design of our study in which respondents first had to decide whether they would be willing to pay more for a combined cinema and public transport ticket and then, conditionally on them expressing a positive willingness, decided on the amount they would be willing to pay.[15] This distinction is particularly relevant, given the relatively high share of respondents who do not express a positive WTP in our sample (38 %). In the following discussion of our results, we differentiate between the share of respondents who are willing to contribute to a combined ticket (*positive WTP*), their stated positive WTP (*conditional WTP*), and the WTP of all respondents, including non-contributors (*overall WTP*).

The results for the first hurdle, the general likelihood to state a positive WTP, are shown in column (1) of Table 2 and the results for the conditional and overall WTP

[14] We used the linear Cragg Hurdle model ('churdle linear') in Stata 14 and the 'margins' command to compute the marginal effects.

[15] In contrast to separately estimating a probit and a tobit model, the hurdle model allows to jointly analyze these correlated decisions while accounting for the possibility that the expression of a positive WTP and the actual level of the WTP are influenced by different factors (Needham and Hanley 2020).

in column (2) and (3), respectively. Additionally, we also investigated the effect of the treatments on the stated frequency of public transport usage (in %) for future cinema visits with a combined ticket. Column (4) of Table 2 shows results from the corresponding OLS regression. Additional to the shown variables, all models control for respondents' and surveyors' gender, respondents' age, number of yearly cinema visits, as well as weekday and the time of the show. The model with all variables displayed can be found in Table A. 2 in the appendix.

[Table 2 about here.]

Respondents in the global treatment expressed a significantly higher WTP than respondents in the baseline. According to the estimated coefficients in Table 2, column (3), the overall WTP is on average €0.53 (38.4 %) higher in the global compared to the baseline treatment. This effect is driven by a combination of a higher share of subjects stating a positive WTP and a higher conditional WTP: Compared to the baseline, the likelihood of having a positive WTP in the global treatment is on average 14.4 percentage points higher (column (1)). This corresponds to an increase of 25.7 % compared to the baseline level. Additionally, the conditional WTP is €0.27 (11.1 %) higher in the global compared to the baseline treatment (column (2)). The estimated coefficient for the local treatment is also positive for the overall WTP, albeit smaller than in the global treatment and not statistically significant. Respondents in the global treatment on average reported a €0.39 (27 %) higher overall WTP ($p < 0.05$) for a combined ticket than respondents in the local treatment (see Table A. 2). This effect is largely driven by a higher conditional WTP in the global treatment. The likelihood to state a positive WTP is similar in the local and the global treatment ($p > 0.1$, column (1) in Table A. 2), but the conditional WTP is €0.32 (13 %) higher ($p < 0.05$, column (2) in Table A. 2).

Interestingly, subjects' intended frequency of public transport usage (in %), as reported in column (4), is affected by both treatments: respondents' prospective use of public transport to the cinema in the local treatment increased on average by an estimated 6.3 percentage points (14.5 %) compared to the baseline and by 10.3 per-

centage points (23.7 %) in the global treatment. The WTU public transport does not significantly differ across the two treatments.

In addition to the treatment indicators, Table 2 also shows a range of other explanatory variables. While the average usage of public transport to the cinema in the previous year only weakly increases the WTP (likelihood and overall magnitude), it is a strong predictor of the intended future public transport usage. Having arrived at the cinema by other means than by car does not matter for the estimated likelihood or mean amount to pay for a combined ticket. The exception are cyclists, whose WTP is significantly lower than that of car drivers. Compared to respondents who travelled to the cinema by car, those who arrived by bike or foot have significantly lower intentions to use public transport in the future. This shows that the combined ticket could actually reach its target group, as substituting car travels and not arrivals by foot or bike is the aim of a combined ticket. As expected, public transport season ticket holders have a significantly lower WTP (*positive, conditional, and overall*) for a combined cinema ticket as well as a significantly lower WTU public transport to the cinema. This likely reflects their missing financial benefit of such a combined ticket.[16]

The results also show that the travel distance to the cinema matters for the amount respondents are willing to pay, but not for the likelihood to exhibit a positive WTP. The further away respondents live from the cinema, the higher their WTP.[17]

[Figure 1 about here.]

47 % of public transport season ticket holders, for whom the combined ticket is redundant, nonetheless indicated a positive WTP for such a ticket. This behavior is puzzling from a purely monetary cost-benefit perspective, but less so if social or environmental preferences are taken into account. We therefore replicated our main analysis differentiating between ticket holders and non-holders. The full regression tables are shown in Table A. 3 and Table A. 4 in the appendix. Figure 1 illustrates the results. The bars represent the predicted values of the outcome variables for the

[16] In general, public transport season ticket holders have a higher WTU than non-holders. However, at equal levels of prior public transport usage to the cinema, non-holders have a financial incentive to increase their future usage when a combined ticket is introduced, while ticket holders do not. This explains the negative coefficient of *Ticket holder* in column (4).

[17] The baseline category here is *city center*, where the cinema is located.

three treatments. Both the share of ticket holders with a positive WTP (Panel A) as well as the overall WTP (Panel C) among ticket holders are significantly higher in the global and the local treatment compared to the baseline. The effect of the global message on the share and mean WTP is larger than the effect of the local message, but the difference is not statistically significant.

Among public transport season ticket holders (Panel A), the global treatment increases the share of respondents with a positive WTP on average by an estimated 23 percentage points (63 %) compared to the baseline. The respective change in the sample of non-holders (Panel E) is only 12 percentage points (18 %). The average increase in overall WTP when receiving a global message is an estimated €0.64 (90 %) for ticket holders (Panel C), but only €0.48 (30 %) for respondents without a season ticket (Panel G). The global treatment effect is thus stronger for holders of a season ticket, though the difference is not statistically significant.[18]

In contrast to the non-holders (Panel G), the local message significantly increases the overall WTP of public transport season ticket holders (Panel C) by an estimated €0.41 or 58 % compared to the baseline. In both treatments, global and local, the overall increase in the WTP among season ticket holders is mainly due to an increase in respondents with a positive WTP. In each case, the estimated effect on the conditional WTP is positive but not statistically significant (Panel B). For the WTU among season-ticket holders (Panel D), both treatment variables have a positive coefficient but only the local treatment is statistically significant (about 7 percentage points compared to the baseline, $p < 0.1$). We find no statistically significant differences between the two climate messages for the main dependent variables in this sub-sample (Panels A – D).

5. Discussion

Contrary to our expectations, the local treatment does not alter subjects' WTP. Instead, only the global treatment has a significant effect on the WTP com-

[18] An interaction effect between the treatment indicators and the indicator for season ticket holders in the full-sample regressions is not statistically significant on any conventional level.

pared to the baseline and also compared to the local group. One possible explanation for the stronger effect of the global compared to the local message in our experiment is a change in the perception of climate change over the years. Nacu-Schmidt, Boykoff, and Katzung (2019) and Mahl et al. (2020) report an increased media coverage of global climate change in Germany, which the latter attribute to the two hot summers in 2018 and 2019 as well as the Fridays for Future movement, with weekly demonstrations also taking place in Kassel. Additionally, Mahl et al. (2020) report increases in awareness of climate change, personal relevance, and interest in climate politics among the German population between 2015 and 2019. Perhaps most importantly, the authors also find an increase in personal self-efficacy with regard to climate change mitigation. This could explain why our respondents, when receiving the global message, developed an intention to act that might have been absent in previous studies. It has also been shown that people tend to be overly optimistic about the state of the local environment (German Environment Agency 2019). It is therefore conceivable that the local message in our experiment resonated less with people's actual concerns than the global message.

Another reason might be found in the composition of our sample. Art house cinema visitors are mostly culturally educated people (Barnett and Allen 2000), which arguably have a rather cosmopolitan identity. In general, people will be motivated to act if the action or its outcome helps to sustain or enhance their self-identity (Akerlof and Kranton 2000; Biddle, Bank, and Slavings 1987; Eagly and Chaiken 1993; Stets and Biga 2003). Individuals who self-identify as global citizens will thus likely react more strongly to the global than to the local treatment. This has been shown also by Grinstein and Riefler (2015), who find that a global message is more effective for individuals with a cosmopolitan orientation.

With regard to our sub-sample analysis, a crowding out effect constitutes a likely explanation for the difference in treatment effects. While public transport season ticket holders arguably based their support on their preferences for protection of the local or, more strongly so, global climate, non-holders may have focused on their potential financial benefit of the combined ticket. This could explain why the treatment effects

are generally stronger among the ticket holders and also why the local message significantly increases their *positive* and *overall WTP*. In contrast, these effects are less pronounced and not statistically significant among the non-holders.

Similar to Menegaki et al. (2009), we find that treatment effects differ for the two outcome variables *WTP* and *WTU*. While the reason for this difference requires further research, this result might help to understand diverging findings in the literature. The paper by Mir et al. (2016), for example, investigates usage intentions and does not find significant differences between the local and the distant climate message. For usage, we do not find a statistically significant difference between climate messages either.

While we are confident that our design largely mitigated a potential hypothetical bias, we need to acknowledge that our results reflect stated preferences and not incentivized choices. It is therefore possible that some respondents inflated their WTP, but it is also possible that others would accept higher additional prices than reported if they were confronted with a take-it-or-leave-it-offer for their cinema ticket. Whether stated intentions correspond with actual changes in transport behavior among our respondents is unclear, although Bamberg, Hunecke, and Blöbaum (2007) show that stated intentions predict actual public transport behavior. Therefore, further research should investigate how customers respond to a combined ticket and different climate messages in a field setting with an incentive to reveal their true preferences. Furthermore, conducting such research with a more diverse sample or with different leisure activity providers would allow for more insights about possible heterogeneity in people's responsiveness to different climate messages.

6. Conclusion

To the best of our knowledge, we are the first to investigate the effectiveness of emphasizing local versus global climate benefits on people's preferences for public transport. Overall, we observe a substantial WTP for a combined ticket and inclination to adapt behavior. In terms of policy implications, this suggests that private providers of leisure services could facilitate customers' sustainable mobility behavior by including access

to public transport in their tickets. The intended future usage of public transport to the cinema in our baseline treatment was about 20 percentage points higher than the indicated share of trips subjects currently undertake via public transport. More than 60 % of all participants indicated a positive WTP for the combined ticket, and almost half of those who do not have any financial incentive did so as well. This corroborates previous research from the transport domain suggesting that even without a direct use value, some people are willing to financially contribute to a system that makes it easier for others to use sustainable mobility, arguably expecting that this will create beneficial externalities (Spindler, Dehnavi, and Wirl 2019).

While the particularities of our sample do not allow for an unconditional generalization of our results, the significant differences across the treatment groups indicate that drawing attention to the climate benefits that public transportation provides can increase the support of both potential users and those that do not benefit from facilitated access to it. However, and contrary to our predictions, we find that only the global message significantly increases the likelihood and mean amount people are willing to pay for a combined cinema ticket, also in comparison with the local message. Both treatments increase the stated future usage of public transport. With respect to the local message, this indicates that while respondents do agree that the city would benefit from less car traffic, their willingness to incur additional financial costs for it is limited. Further investigations of this gap between financial and behavioral willingness to act seem to be a fruitful area of subsequent research.

Our results add to the literature that casts doubt on the negative relationship between pro-environmental engagement and spatial distance. We believe that our findings reflect a general increase in awareness and willingness to act with regard to global climate change, but also peculiarities in our sample in terms of values and identities. We therefore propose that climate communication efforts should be designed specifically to the target group and its members and be sensitive to current trends in the public debate.

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Appendix A. Additional figures and tables

Additional figures

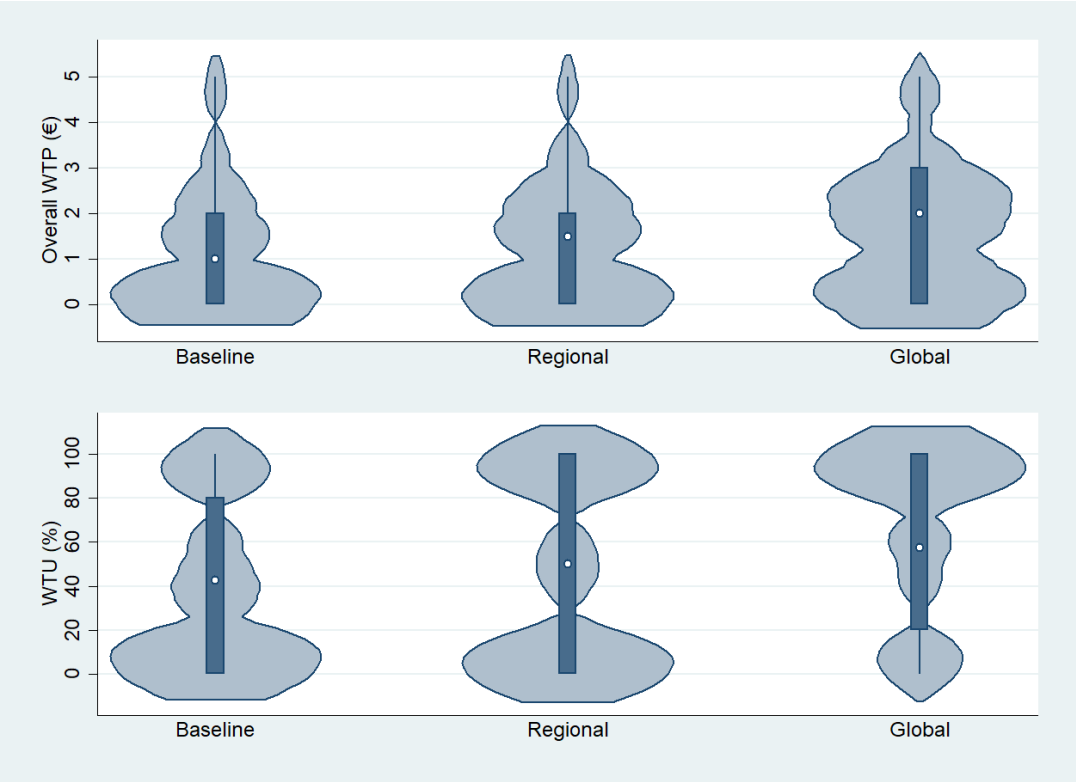

Figure A.1.: **Violin plots of main outcome variables.**
For each treatment the upper panel displays violin plots of respondents' stated WTP for a combined ticket and the lower panel violin plots of respondents' stated WTU public transport as proportion of future trips to the cinema in case public transport is included in all regular movie tickets. The white dot represent the median, the solid bar the interquartile range and the lines extending from the bar indicate the lower and upper adjacent values. The outer lines display the kernel density plot of the respective variable.

Additional tables

Table A. 1 shows summary statistics of all elicited variables by treatment. Table A. 2 presents the main results of our paper with all controls shown. Table A. 3 gives results for the sub-analysis of season ticket holders and Table A. 4 for non-holders of a season ticket.

Table A. 1.: Summary Statistics

	Baseline				Local				Global				
	Count	Mean	SD	Min-Max	Count	Mean	SD	Min-Max	Count	Mean	SD	Min-Max	P-value
Positive WTP	232	0.56	0.50	0-1	209	0.61	0.49	0-1	196	0.70	0.46	0-1	0.01
Conditional WTP	131	2.44	1.36	0.75-5	128	2.39	1.27	0.5-5	136	2.68	1.33	0.5-5	0.09
Overall WTP	232	1.38	1.59	0-5	209	1.47	1.53	0-5	194	1.88	1.66	0-5	0.00
WTU	236	43.41	38.85	0-100	207	48.49	40.67	0-100	196	58.01	39.39	0-100	0.00
Usage Public Transport	237	22.22	33.45	0-100	209	20.29	32.87	0-100	198	27.24	37.36	0-100	0.12
Car	237	0.70	0.46	0-1	209	0.73	0.44	0-1	198	0.64	0.48	0-1	0.14
Bike	237	0.04	0.19	0-1	209	0.06	0.24	0-1	198	0.04	0.19	0-1	0.34
Foot	237	0.12	0.32	0-1	209	0.06	0.23	0-1	198	0.10	0.30	0-1	0.08
Public transport	237	0.15	0.36	0-1	209	0.15	0.36	0-1	198	0.22	0.42	0-1	0.07
Pub. trans. season ticket holder	237	0.27	0.44	0-1	208	0.27	0.44	0-1	198	0.28	0.45	0-1	0.96
City center	237	0.26	0.44	0-1	209	0.20	0.40	0-1	198	0.20	0.40	0-1	0.16
City area	237	0.34	0.47	0-1	209	0.34	0.47	0-1	198	0.39	0.49	0-1	0.40
Greater city	237	0.21	0.41	0-1	209	0.30	0.46	0-1	198	0.15	0.36	0-1	0.00
Outside city	237	0.19	0.40	0-1	209	0.16	0.37	0-1	198	0.26	0.44	0-1	0.05
Female	237	0.55	0.50	0-1	209	0.56	0.50	0-1	198	0.59	0.49	0-1	0.77
Age	233	57.39	9.74	19-79	207	58.58	10.49	20-81	195	56.89	10.94	18-80	0.08
Sunday	237	0.19	0.39	0-1	209	0.15	0.36	0-1	198	0.09	0.29	0-1	0.01
Monday	237	0.09	0.28	0-1	209	0.22	0.41	0-1	198	0.09	0.29	0-1	0.00
Tuesday	237	0.13	0.34	0-1	209	0.00	0.00	0-0	198	0.17	0.38	0-1	0.00
Wednesday	237	0.13	0.33	0-1	209	0.07	0.25	0-1	198	0.06	0.23	0-1	0.02
Thursday	237	0.11	0.31	0-1	209	0.08	0.27	0-1	198	0.09	0.29	0-1	0.58
Friday	237	0.12	0.33	0-1	209	0.22	0.41	0-1	198	0.16	0.36	0-1	0.03
Saturday	237	0.23	0.42	0-1	209	0.27	0.45	0-1	198	0.34	0.48	0-1	0.04
Early show	237	0.34	0.47	0-1	209	0.44	0.50	0-1	198	0.46	0.50	0-1	0.02
Surveyor female	237	0.66	0.47	0-1	209	0.78	0.41	0-1	198	0.73	0.44	0-1	0.02
Yearly cinema visits	237	9.32	6.27	1-36	209	9.45	8.53	0-50	198	10.89	10.97	0-100	0.13

Notes: P-Values in the last column refer to Pearson's chi-squared test for independence between the treatments in case of binary variables and to the Kruskal-Wallis equality-of-populations rank test for the other variables.

Table A. 2.: Main Results - Full Table with "Local" as Base Category

	(1)	(2)	(3)	(4)
		WTP		WTU
	Positive	Conditional	Overall	
Baseline	-0.0718	0.0498	-0.1363	-6.3258**
	(-1.5086)	(0.3333)	(-0.9441)	(-2.0939)
Global	0.0721	0.3182**	0.3908**	3.9773
	(1.4741)	(1.9652)	(2.3529)	(1.1553)
Usage public transport	0.0014*	0.0011	0.0041*	0.7210***
	(1.8938)	(0.4141)	(1.6832)	(18.3698)
Bike	-0.0898	-0.5724**	-0.5427**	-23.7341***
	(-0.8964)	(-2.4582)	(-2.3057)	(-7.1574)
Foot	-0.0346	0.1004	-0.0220	-10.4844**
	(-0.4678)	(0.3947)	(-0.0943)	(-2.4084)
Public transport	-0.0448	-0.1171	-0.1799	-2.0809
	(-0.7104)	(-0.5869)	(-0.9291)	(-0.6144)
Pub. trans. season ticket holder	-0.2536***	-0.5112***	-0.8765***	-9.6126***
	(-4.9621)	(-2.9583)	(-6.0370)	(-3.3384)
City area	0.0646	0.2950*	0.3485**	1.5335
	(1.2354)	(1.8013)	(2.1257)	(0.4816)
Greater city	0.0730	0.9270***	0.8004***	4.5646
	(1.2580)	(4.4888)	(3.7320)	(1.1834)
Outside city	0.0882	1.4548***	1.2100***	6.7802
	(1.4584)	(6.4695)	(4.8634)	(1.5895)
Female	0.0181	-0.1037	-0.0229	-1.0155
	(0.4736)	(-0.8955)	(-0.1954)	(-0.3947)
Age	-0.0002	0.0028	0.0013	-0.2059
	(-0.0991)	(0.3999)	(0.1988)	(-1.5605)
Monday	-0.1119	0.0271	-0.2350	2.8037
	(-1.5772)	(0.1207)	(-1.0971)	(0.5960)
Tuesday	-0.0003	0.0132	0.0085	3.3163
	(-0.0042)	(0.0585)	(0.0367)	(0.6109)
Wednesday	-0.1093	0.5017	0.0512	-1.7127
	(-1.3458)	(1.6314)	(0.1753)	(-0.3426)
Thursday	-0.0681	0.5360**	0.1862	-0.0643
	(-0.8917)	(2.1754)	(0.7393)	(-0.0131)
Friday	-0.0620	-0.0569	-0.1749	-2.9893
	(-0.9266)	(-0.2758)	(-0.8728)	(-0.6978)
Saturday	-0.0708	0.1981	-0.0334	6.9925
	(-1.1752)	(1.0179)	(-0.1782)	(1.6407)
Early show	-0.0148	0.1451	0.0572	5.2523*
	(-0.3600)	(1.0606)	(0.4259)	(1.8668)
Surveyor female	-0.0626	-0.0338	-0.1720	-1.8886
	(-1.4734)	(-0.2387)	(-1.2183)	(-0.6636)
Yearly cinema visits	-0.0042**	-0.0021	-0.0114*	-0.4130***
	(-1.9620)	(-0.4167)	(-1.8239)	(-3.2486)
Observations		625		629

Marginal effects of linear Cragg hurdle model (column (1)-(3)) and OLS (column (4)) estimation results with robust standard errors. Z-values in parentheses. Levels of significance: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A. 3.: Sub-sample results for holders of a public transport season ticket

	(1)	(2)	(3)	(4)
	WTP			WTU
	Positive	Conditional	Overall	
Local	0.1727*	0.1599	0.4052*	7.0658*
	(1.9020)	(0.5025)	(1.6945)	(1.6885)
Global	0.2329**	0.3554	0.6410**	5.6806
	(2.5194)	(1.1101)	(2.5671)	(1.1827)
Usage public transport	0.0007	-0.0003	0.0013	0.8552***
	(0.5825)	(-0.0657)	(0.4139)	(17.1198)
Bike	-0.2159	0.1702	-0.4292	-15.8272***
	(-1.0358)	(0.4263)	(-0.8176)	(-3.2085)
Foot	0.1147	-0.3808	0.0024	-2.6535
	(0.9465)	(-1.0662)	(0.0078)	(-0.4153)
Public transport	-0.1578*	-0.4413	-0.5226**	-8.6521***
	(-1.6980)	(-1.4532)	(-2.3742)	(-2.7050)
City area	0.1321	0.3211	0.4320*	1.5772
	(1.4001)	(0.9935)	(1.7006)	(0.4167)
Greater city	0.0736	1.0580**	0.7155*	3.2525
	(0.6132)	(2.4507)	(1.8672)	(0.6603)
Outside city	0.3420***	1.1648**	1.5087***	14.7146**
	(3.3305)	(2.3437)	(3.2875)	(2.1477)
Female	0.0692	-0.2037	0.0444	-0.2254
	(0.8589)	(-0.8794)	(0.2308)	(-0.0583)
Age	-0.0015	-0.0109	-0.0084	-0.2003
	(-0.4894)	(-0.9729)	(-1.0500)	(-1.1014)
Monday	-0.1220	0.7286	0.1257	-7.5604
	(-0.7961)	(1.4757)	(0.3357)	(-1.3314)
Tuesday	0.1618	0.4215	0.5117	5.3791
	(1.0514)	(0.9677)	(1.3841)	(0.5666)
Wednesday	-0.1121	1.3504**	0.4009	-6.3618
	(-0.7217)	(2.0261)	(0.8372)	(-0.8382)
Thursday	0.0531	1.1080**	0.7147*	-2.7613
	(0.3741)	(2.4350)	(1.8032)	(-0.4422)
Friday	0.0301	0.4782	0.3091	-4.8319
	(0.2322)	(1.4086)	(1.1687)	(-0.7128)
Saturday	-0.1617	0.7042	0.0315	-4.6703
	(-1.2651)	(1.6375)	(0.1094)	(-0.7523)
Early show	-0.0205	0.5941**	0.2444	-0.0975
	(-0.2560)	(2.2349)	(1.1213)	(-0.0263)
Surveyor female	-0.0973	0.4371*	0.0309	-3.8201
	(-1.1615)	(1.7829)	(0.1475)	(-1.0336)
Yearly cinema visits	-0.0048	0.0088	-0.0055	-0.0735
	(-0.9871)	(0.7293)	(-0.4371)	(-0.4303)
Observations		168		171

Marginal effects of linear Cragg hurdle model (column (1)-(3)) and OLS (column (4)) estimation results with robust standard errors. Z-values in parentheses. Levels of significance: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A. 4.: Sub-sample results for non-holders of a public transport season ticket

	(1)	(2)	(3)	(4)
	WTP			WTU
	Positive	Conditional	Overall	
Local	0.0553	-0.0222	0.1228	5.6170
	(0.9896)	(-0.1284)	(0.6707)	(1.4033)
Global	0.1169**	0.2577	0.4843**	10.8739***
	(2.1963)	(1.4073)	(2.5480)	(2.7652)
Usage public transport	0.0034***	0.0017	0.0099**	0.6552***
	(2.7384)	(0.5254)	(2.5400)	(11.9757)
Bike	-0.0532	-0.6495**	-0.5553**	-23.8180***
	(-0.4955)	(-2.5315)	(-2.0734)	(-5.5196)
Foot	-0.1171	0.2009	-0.1864	-12.4474**
	(-1.3384)	(0.6414)	(-0.6185)	(-2.2022)
Public transport	0.0590	-0.0900	0.0838	2.3956
	(0.7028)	(-0.3521)	(0.2896)	(0.4476)
City area	0.0402	0.3286*	0.3332	2.2109
	(0.6275)	(1.7278)	(1.5673)	(0.4985)
Greater city	0.0723	0.9418***	0.8646***	5.6937
	(1.0873)	(4.0408)	(3.3615)	(1.1318)
Outside city	0.0246	1.5547***	1.1505***	5.4456
	(0.3491)	(6.2253)	(3.8144)	(1.0322)
Female	0.0170	-0.1279	-0.0445	-1.0383
	(0.3953)	(-0.9549)	(-0.3122)	(-0.3238)
Age	0.0006	0.0083	0.0074	-0.2427
	(0.2619)	(1.0262)	(0.8660)	(-1.3069)
Monday	-0.1005	-0.0387	-0.2736	6.2712
	(-1.2538)	(-0.1552)	(-1.0458)	(1.0678)
Tuesday	-0.0561	-0.0478	-0.1716	3.4920
	(-0.6407)	(-0.1795)	(-0.5991)	(0.5287)
Wednesday	-0.0953	0.3815	0.0125	0.1258
	(-1.0514)	(1.1701)	(0.0371)	(0.0198)
Thursday	-0.0896	0.4772*	0.0913	1.1682
	(-0.9940)	(1.6744)	(0.2932)	(0.1771)
Friday	-0.1065	-0.1461	-0.3569	-3.0451
	(-1.3541)	(-0.5673)	(-1.3676)	(-0.5462)
Saturday	-0.0249	0.1352	0.0360	10.5281**
	(-0.3784)	(0.6196)	(0.1565)	(1.9890)
Early show	-0.0292	0.0796	-0.0201	6.8598*
	(-0.6258)	(0.5294)	(-0.1259)	(1.9180)
Surveyor female	-0.0498	-0.1214	-0.2135	-1.3013
	(-1.0049)	(-0.7080)	(-1.1770)	(-0.3396)
Yearly cinema visits	-0.0039*	-0.0050	-0.0133*	-0.4839***
	(-1.6856)	(-0.8482)	(-1.8150)	(-2.6777)
Observations		457		458

Marginal effects of linear Cragg hurdle model (column (1)-(3)) and OLS (column (4)) estimation results with robust standard errors. Z-values in parentheses. Levels of significance: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Appendix B. Complete survey instructions

These are the instructions of the survey experiment, translated from German to English. The survey was conducted inside the 'BALi' cinema in face-to-face interviews using tablets. The 'BALi' cinema belongs to an art house cinema group in Kassel (together with the 'Filmladen', the 'Gloria' and the Open Air cinema). The instructions below include all three treatment texts. Only one of them was shown to each respondent.

Instructions

Good evening, do you have a moment for a short survey on getting to the movie theater by bus & train? We are students from the University of Kassel and conduct a short survey on behalf of the BALi cinema. All responses are voluntary and anonymous. Of course, all data will be processed in compliance with the applicable data protection regulation.

Q1: How many times per year do you go to the movie theaters 'Filmladen,' 'BALi,' 'Gloria,' and the Open Air cinema?

Q2: How did you get here today?

Car	Bicycle	By foot
Public transport	Not specified	Other

Q3: How often do you use public transport (in %) to get to the movie theaters 'Filmladen,' 'BALi,' 'Gloria,' and the Open Air cinema? (share in %)?

Q4: Do you have a season ticket for local transport in Kassel (weekly, monthly or annual ticket)?

Yes	No	Not specified

Q4.1 [*if Q4 = Yes*]: What type of season ticket?

Weekly ticket	Monthly ticket	Annual ticket	Job ticket
Hesse State Ticket	Student ticket	Senior ticket	Senior ticket comfort
Diakonie Ticket	Not specified	Other	

Q5: Please state your zip code:

Q6: Please state your year of birth:

Q7: Please indicate your gender:

Male	Female	Diverse	Not specified

New Screen (Only one of the three messages was shown):

Baseline Treatment:

Some cinemas consider to offer their tickets in combination with a public transport ticket.

Local Treatment:

The inner city of Kassel suffers from too much car traffic. The urban climate would benefit from more people using busses and trains. Some cinemas now consider to offer their tickets in combination with a public transport ticket.

Global Treatment:

The world suffers from global climate change. The global climate would benefit from more people using busses and trains. Some cinemas now consider to offer their tickets in combination with a public transport ticket.

Q8: Would you be willing to pay more money for your cinema ticket if it would include the use of busses and trains to the cinema and back?

Yes	No	No, I don't have a local transport connection	Not specified

Q8.1 [*if Q8 = Yes*]: How much would you be willing to pay at maximum on top of the cinema ticket?

0.25 €	0.50 €	0.75 €	1.00 €	1.25 €
1.50 €	1.75 €	2.00 €	2.25 €	2.50 €
2.75 €	3.00 €	3.25 €	3.50 €	3.75 €
4.00 €	4.25 €	4.50 €	4.75 €	5.00 €
Not specified				

Q9: How often would you use public transport (in %) to get to the movie theaters 'Filmladen,' 'BALi,' 'Gloria,' and the Open Air cinema if a combined cinema and local transport ticket would be introduced for all cinema tickets?

List of Tables

Table 1.: Summary Statistics Outcome Variables

	WTP						WTU	
		Positive	Conditional		Overall			
	N	Mean	Mean	Median	Mean	Median	N	Mean
Baseline	232	56 %	€2.44	€2.00	€1.38	€1.00	236	43 %
Local	209	61 %	€2.39	€2.00	€1.47	€1.50	207	48 %
Global	194	70 % ^{aaa,b}	€2.68 ^{a,bb}	€2.50	€1.88 ^{aaa,bbb}	€2.00	196	58 % $^{aaa,\ bb}$
Total	635	62 %	€2.51	€2.00	€1.56	€1.00	639	50 %

The superscript letters indicate statistically significant differences between the corresponding treatments (Baseline = a, Local = b) and the levels of significance: $^{a,b} < 0.10$, $^{aa,bb} < 0.05$, $^{aaa,bbb} < 0.01$. For example, the share of respondents with a positive WTP in the global treatment is different from the baseline with $p < 0.01$ (^{aaa}) and from the local treatment with $p < 0.1$ (^{b}). Tests of significance are based on two-sided non-parametrical tests (Pearson χ^2 or Mann-Whitney-Wilcoxon).

Table 2.: Main Results

	(1)	(2)	(3)	(4)
		WTP		WTU
	Positive	Conditional	Overall	
Local	0.0718	-0.0498	0.1363	6.3258**
	(1.5086)	(-0.3333)	(0.9441)	(2.0939)
Global	0.1440***	0.2684*	0.5271***	10.3031***
	(3.0344)	(1.6838)	(3.3559)	(3.3024)
Usage public transport	0.0014*	0.0011	0.0041*	0.7210***
	(1.8938)	(0.4141)	(1.6832)	(18.3698)
Bike	-0.0898	-0.5724**	-0.5427**	-23.7341***
	(-0.8964)	(-2.4582)	(-2.3057)	(-7.1574)
Foot	-0.0346	0.1004	-0.0220	-10.4844**
	(-0.4678)	(0.3947)	(-0.0943)	(-2.4084)
Public transport	-0.0448	-0.1171	-0.1799	-2.0809
	(-0.7104)	(-0.5869)	(-0.9291)	(-0.6144)
Pub. trans. season ticket holder	-0.2536***	-0.5112***	-0.8765***	-9.6126***
	(-4.9621)	(-2.9583)	(-6.0370)	(-3.3384)
City area	0.0646	0.2950*	0.3485**	1.5335
	(1.2354)	(1.8013)	(2.1257)	(0.4816)
Greater city	0.0730	0.9270***	0.8004***	4.5646
	(1.2580)	(4.4888)	(3.7320)	(1.1834)
Outside city	0.0882	1.4548***	1.2100***	6.7802
	(1.4584)	(6.4695)	(4.8634)	(1.5895)
Observations		625		629

Marginal effects of linear Cragg hurdle model (column (1)-(3)) and OLS (column (4)) estimation results with robust standard errors. Z-values in parentheses. Additional control variables for respondents' and surveyors' gender, respondents' age, number of yearly cinema visits, weekday, and time of the show are included in the model but not shown. Levels of significance: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

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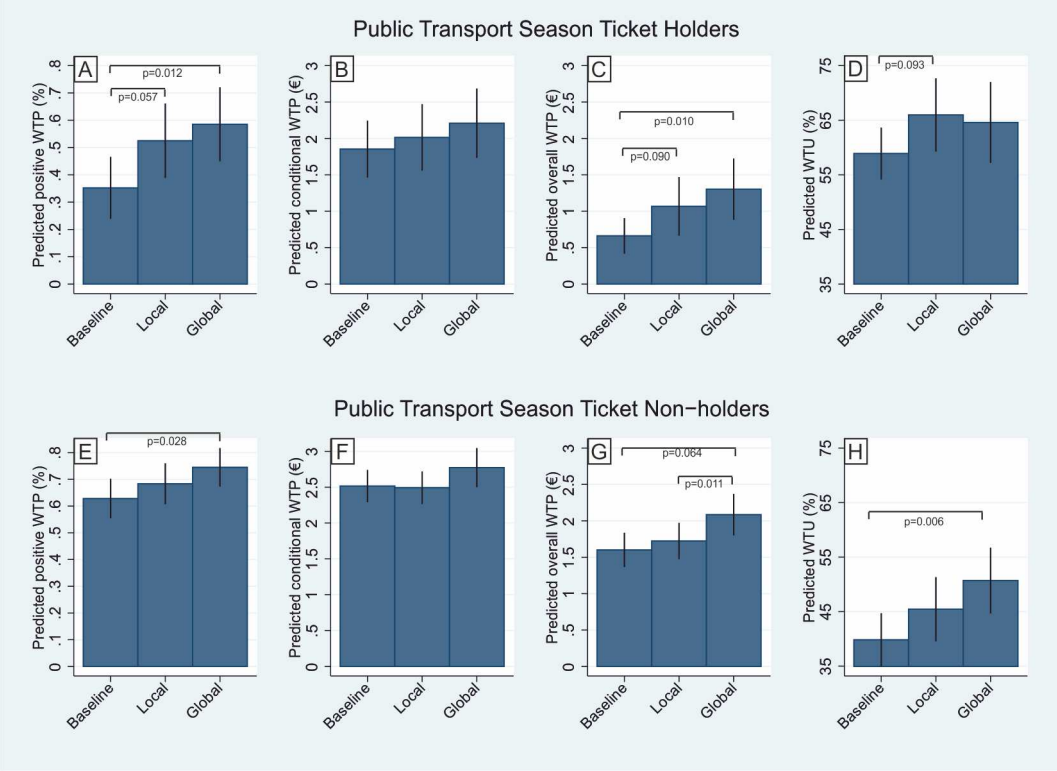

Figure 1.: **Public transport season ticket holders vs. non-holders.** In each row, the panel in the first column shows the predicted likelihood to report a positive WTP. The second column illustrates the predicted mean conditional WTP and the panels in the third column the predicted mean overall WTP. The last column shows the predicted WTU public transport. The error bars indicate the 95 % confidence interval. The values are taken from a replication of the model in Table 2 but restricted to season ticket holders (top) and non-holders (bottom). Model results are presented in Tables A. 3 and A. 4 in the appendix.