



The public acceptability of push and pull measures as tools to promote sustainable mobility: A case-study for the 2014 FIFA World Cup

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Abstract

Mega-events, such as the FIFA Football World Cup, put unparalleled strain on the transport infrastructure of host cities, especially in the developing world where the transport system still cannot satisfactorily cope with the daily mobility of citizens. Behavioural issues are being increasingly considered as an answer to meeting the massive demand for transport and mobility during such short-term events, while it may also generate the desirable long-term legacy of sustainable mobility options to the host cities. One potentially effective means to reduce private car use and to promote long-term sustainable transport usage is through influencing the public acceptability of alternative transport options. To begin to address this knowledge shortfall, a study was conducted in Manaus, Brazil, in the year 2011 (before the World Cup). The findings recommend that a change in travel behavior, particularly during a mega-event, is more effectively achieved if policy-makers give priority to the measures promoting sustainable mobility. Therefore, transport policy-makers should encourage the use of sustainable transport and/or mobility over the application of measures that would punish private car use.

Keywords: Public acceptability. Mega-events. Sustainable tourism mobility.

Resumo

Os megaeventos, como a Copa do Mundo, colocam uma pressão sem precedentes sobre a infraestrutura dos transportes nas cidades-sede, especialmente nos países em desenvolvimento, onde o sistema de transporte ainda não consegue oferecer uma mobilidade satisfatória para seus cidadãos no cotidiano. As questões relacionadas ao comportamento estão cada vez mais sendo consideradas como uma resposta para atender a enorme demanda por transporte e mobilidade durante tais eventos de curto prazo, ao mesmo tempo em que também podem gerar um legado positivo em longo prazo no que diz respeito às opções de mobilidade sustentável para as cidades anfitriãs que sediam o megaevento. Uma maneira potencialmente eficaz para reduzir o uso de automóveis particulares e de promover o uso do transporte sustentável em longo prazo é por meio da influencia da aceitabilidade pública para as opções de transporte alternativas. Para começar a resolver essa lacuna de conhecimento, um estudo foi realizado em Manaus, no Brasil, no ano de 2011 (pré Copa do Mundo). Os resultados recomendam que uma mudança no comportamento durante a viagem, especialmente no curso de um megaevento, é mais eficazmente alcançada se os decisores políticos derem prioridade às medidas de promoção da mobilidade sustentável. Portanto, os responsáveis pelos transportes devem incentivar o uso de transporte e/ou mobilidade sustentável ao invés de aplicar medidas que punem a utilização do automóvel particular.

Palavras-chaves: Aceitabilidade Pública. Megaeventos. Mobilidade Sustentável no Turismo.

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Introduction

Cities in the developing world are increasingly being challenged by substantial increases in private car ownership, largely driven by population growth and higher income. Regarding the challenge of growing rates of motorized individual transport, a study developed by Iervolino (2012) indicates that the motorization rate in Brazil has risen by about 60% within the last 10 years. A strategy of strongly investing in road infrastructure has proved to be effective in solving traffic problems only in the short-term (DIMITRIOU; BANJO, 1990); in the long term it is likely to lead to even more car use, greater traffic volumes and, consequently, a greater source of dissatisfaction for users and society. Many of these issues are brought into focus in the lead up to and during mega-events such as the FIFA Football World Cup (FWC), which can put unparalleled strain on the transport infrastructure of host cities. Due to intensified modernization and investment efforts such events may also serve as a catalyst for urban regeneration and renewal, including the promotion of sustainable mobility.

There is increasing evidence that mobility management during mega-events needs to go far beyond mere a focus on the infrastructural dimension of transport (DEPARTMENT OF ENVIRONMENTAL AFFAIRS, 2011). Behavioral issues also need to be considered to ensure successful mobility management during the event, and to achieve a genuine and long-term legacy of sustainable urban mobility options (MALHADO; ROTHFUSS, 2013). A mega-event represents a singular occasion to mobilize behavioral change in society in favor of more sustainable user attitudes (BOVY, 2001), including those as entrenched as car ownership and use.

1 Public acceptability

Public acceptability as a tool to promote sustainable transport changes has shown to be effective, as it drives a rich debate on sufficient public support for change in the public and political levels. As outlined by Rietveld; Stough (2006) some measures seem to be valuable in progressing sustainable transport, but in true their effectiveness is minimal because people do not accept their implementation.

One potentially effective means to reduce private car use and to promote long-term sustainable mobility is through influencing public acceptability of alternative transport options. Public acceptability plays a key role in promoting effective sustainable transport

measures (WINDSPERGER *et al.*, 2008; VAN DEN BERGH *et al.*, 2007; BROHMANN *et al.*, 2008) and, in this context, mega-events may act as an effective vehicle for disseminating information and influencing attitudes and behaviors. This public acceptability is usually dependent on whether these strategies involves a “push” or a “pull” measure; does it encourage the use of sustainable modes of transport or does it discourage the use of private cars?

Thus, mega-events can be used as ‘laboratory’ to monitor strategies or policies related to transport (BOVY, 2006). Nevertheless, research integrating mobility, public acceptability and travel behavior is still in its infancy, and there is a lack of baseline data and quantitative studies.

2 The case-study

To begin to address this knowledge shortfall, a study was conducted in the forthcoming host-city of the 2014 FWC, the city of Manaus, located in Northeast of Brazil. The case-study was performed during the months of November and December in 2011.

A non-probability sampling technique, called convenience sampling, was used. The sampling frame (517 individuals) consisted of the residents (85%) and tourists (15%), of whom 48% were male and 52% female, in Manaus within the first beltway in leisure places (parks, restaurants, shopping centers) and near to the 2014 FWC venue. The survey was conducted by self-completion questionnaires delivered in person. Most respondents had a high school certificate (47%) or Bachelor’s degree (35%) and the majority (67%) belonged to the younger age group (18 – 35 years old).

The survey population was grouped into two main groups for analysis: group I consisting of car users and group II consisting of non-car users. Quantitative data analysis was performed with the Statistical Package for the Social Sciences (SPSS). Tests of group differences, related to car users and non-car users to their mean scores on some response variables, were applied through non-parametric tests.

The study drew upon expected-utility theory to assess the public acceptability of a number of transport and mobility strategies. These strategies included both positive pull measures (usually short-term solutions for mobility management during the 2014 FWC) and negative push measures (long-term solutions that may result in behavioral change).

Differently from conventional transport problems which can be solved within the transport sector, the solutions to sustainability problems claim for integrated measures (PRIDMORE; MIOLA, 2011). Therefore, it is essential to address the trends in public acceptability of these measures to achieve sustainable transport.

Non-car users generally responded more positively (higher mean level of acceptance) to the restrictive or “push” measures to discourage private car use during the 2014 FWC (see figure 1): parking elimination in some streets, close streets for exclusive use of non-motorized transport (NMT), area/zone of limited circulation, restrict car use, increase parking fees and introduce congestion charge.

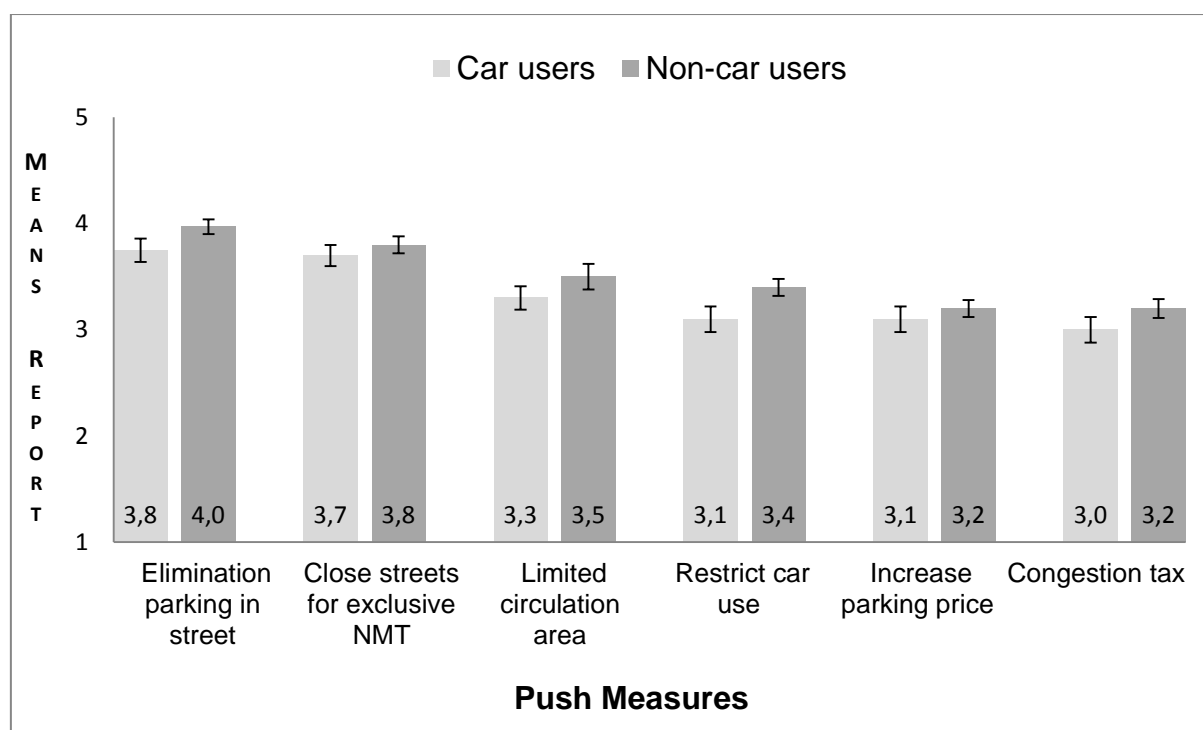


Figure 1. Acceptance of restrictive or “push” measures discouraging car use
Source: Article’s Authors

Surprisingly, car users show a higher acceptance of all the promoting or “pull” measures proposed for the 2014 FWC (see figure 2): Transport integration, higher public transport (PT) frequency, special PT services during matches, bikes to rent, walk together and combined PT and stadium ticket. Note that for the pull measures the means are rather high in both groups, well above four, delineating a high level of acceptance.

According to the nonparametric Mann-Whitney-U-Test, differences between car users and non-car users were significant for the following pull measures: ‘Transport integration’ (U

= 24377.000, DF = 498, $p = .004$), 'higher PT frequency' ($U = 25379.500$, DF = 501, $p = .018$), 'special PT services for games' ($U = 25147.500$, DF = 500, $p = .030$), 'bikes to rent' ($U = 27446.000$, DF = 500, $p = .029$); and for the following push measure: 'Restrict car use' ($U = 24353.000$, DF = 489, $p = .044$).

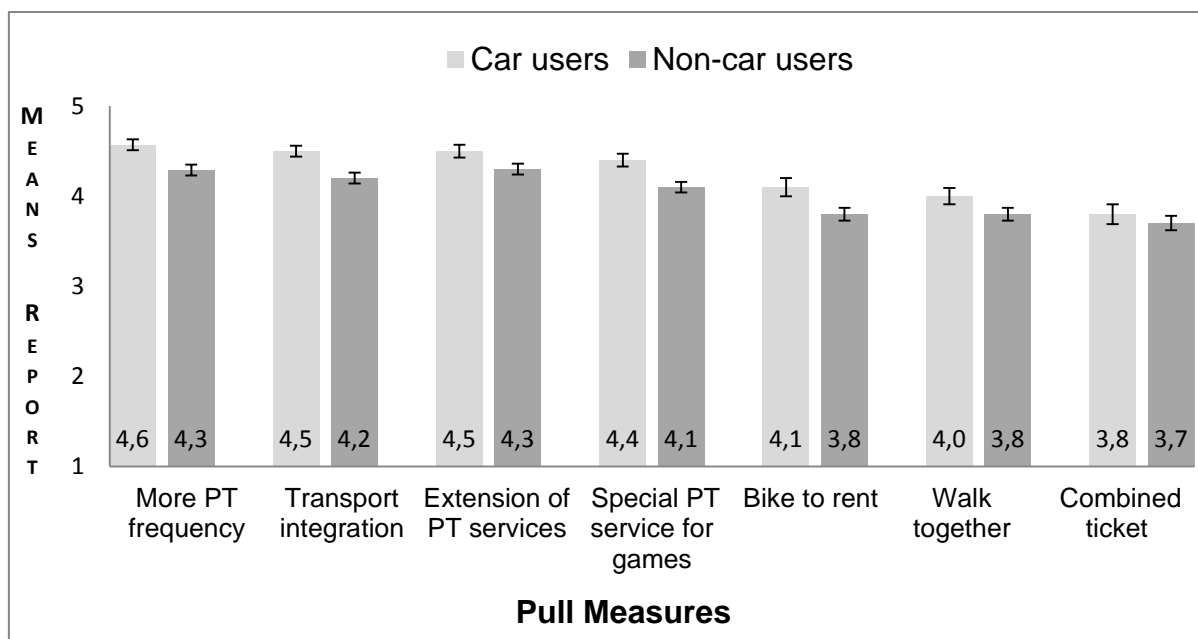


Figure 2. Acceptance of promoting or “pull” measures to encourage the use of alternative transport modes
Source: Article’s Authors

Conclusion

These findings suggest that while the pull measures are generally well accepted among respondents, the acceptability of push measures is generally lower for both non-car users and car users. The acceptance of strategies which would involve higher prices for car users is somewhat lower, indicating that such strategies would not be strongly appreciated by transport users during the 2014 FWC, but still suitable to promote sustainable mobility. More generally, there seems to be a common understanding among transport users that measures promoting sustainable mobility should be given priority over punishing private car use. Thus, there would be high public acceptability of strategies which improve the PT system and service quality. Based on these results it is argued that the successful development of sustainable mobility for mega-events must involve an appropriate balance between pull and push measures, supported by empirical research.

Undoubtedly, these mega-events constitute a unique opportunity to provide effective groundwork for developing new users’ attitudes and achieving changes in travel behavior

(BOVY, 2006; MURPHY; BAUMAN, 2007; PREUSS, 2004). However, this potentially ‘game-changing’ aspect is virtually invisible in discussions of the transport planning for the 2014 FWC in Brazil. Part of this problem may be the lack of empirical social science studies that gauge public acceptability of alternative strategies.

Another aspect is unquestionably a general lack of awareness of sustainable transport solutions among politicians, policy makers and urban planners. Bridging these gaps will require further research and, more importantly, concrete examples of how a balanced and empirically-informed selection of push and pull measures can lead to genuine sustainable mobility.

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