

Mega-events, transport legacy and the redistribution of employment accessibility

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A growing number of studies have discussed the potential of mega-events in the promotion of urban development, particularly investigating the claims that such events can foster urban regeneration of host cities by boosting their local economies and leveraging infrastructure investments (Chalkley & Essex, 1999; Gratton, Shibli, & Coleman, 2005; Hiller, 2000). The infrastructure works associated with such events and their promises of enduring legacies play a key part in the justification used by local governments to bid for hosting mega-events as a means of attracting investments and bringing about new economic impulses (Chalkley & Essex, 1999; Paddison, 1993; Rubalcaba-Bermejo & Cuadrado-Roura, 1995; Zhang & Zhao, 2009).

This mega-event strategy to fast-track urban development is commonly backed by pro-growth discourses, which rely on the assumption that all local residents equally benefit from the trickle-down effect of economic growth and improvements in urban infrastructure (Baade, 1996; Baade & Matheson, 2004; Gratton et al., 2005; Hiller, 2000; Jones, 2001; Kasimati, 2003; Müller, 2015). However, in addition to inconclusive findings about whether the economic outcomes of such events match the positive expectations raised by official discourses (ibid), there is growing evidence of the negative impacts of mega-events on urban policy making. Much has been written on how mega-events put at risk democratic practices in host cities (Andranovich, Burbank, & Heying, 2001; Hiller, 2000; Müller, 2015; Raco, 2014; Roche, 1994), involve significant environmental impacts (Collins, Flynn, Munday, & Roberts, 2007; Collins, Jones, & Munday, 2009) and often displace the long-term goals of urban development policies (Andranovich et al., 2001; Gold & Gold, 2011; Müller, 2015). Some studies also suggest that public authorities of host cities have generally failed to reconcile the

organization of mega-events with the housing rights of low-income people that had to be evicted from their houses to make room for new infrastructure (Armstrong, Hobbs, & Lindsay, 2011; Gaffney, 2010; Shin & Li, 2013; Vanwynsberghe, Surborg, & Wyly, 2013).

What has received much less attention in the literature, however, is the discussion of transport legacy, and particularly the distributive aspects of who benefits from the new transport infrastructure developments once they have been put in place. This paper focuses on how such developments affect the transport accessibility to job opportunities of different social groups in host cities. As a case study, we analyze Rio de Janeiro (Brazil), where transport planning has been largely driven by mega-events for more than a decade, since the city started its preparation to host major sports mega-events, including the 2007 Pan American Games, 2014 FIFA Football World Cup and the 2016 Summer Olympic Games. We look particularly at the transformations carried out in the transport system in preparation for the World Cup and Olympic Games, including three new high-capacity Bus Rapid Transit (BRT) corridors that together will be 123 km-long and cost more than US\$ 1.5 billion, crossing the city and connecting peripheral neighborhoods with more than 120 stations.

A distributive justice discussion of the transport legacy from mega-events is important for several reasons. These events involve substantial amounts of public funds that are directed to infrastructure investments over which the local population generally has little influence or say. Project evaluations of mega-events and transport investments are traditionally carried out using a cost-benefit analysis framework without taking into account the distributive aspects of who reap the benefits and who bear the costs of such investments (Flyvbjerg & Stewart, 2012; Hausman & McPherson, 2006; Van Wee, 2012). The transport legacy can substantially change the organization of urban space and may reshape inequalities in transport accessibility, potentially resulting in intensified transport disadvantage, social exclusion, and inequality of access to jobs, health or education services for particular population segments. Hence, it is crucial to evaluate whether local governments mobilize these events to reinforce or redress existing patterns of urban inequalities and segregation.

Despite the potential role of transport investments in shaping socio-spatial inequalities (Badcock, 1984; Harvey, 2009), most of the literature on mega-events and urban transport has focused on the short-term challenges of delivering transport services during the events in terms of traffic management and contingency plans to deal with peak demand (Currie & Shalaby, 2012; Hensher & Brewer, 2002; Liu et al., 2008; Mao, 2008; Minis & Tsamboulas, 2008; Robbins, Dickinson, & Calver, 2007). Only a handful of studies have discussed more closely the long-term transport benefits from mega-events (Kassens-Noor, 2010, 2013; Legroux, 2014; Rodrigues & Legroux, 2015). Comparing five cities that previously hosted the Olympic Games between 1992 and 2012 (Barcelona, Atlanta, Sydney, Athens and London), Kassens-Noor (2010, 2013) notes that only a few of the transport measures adopted during the events have been sustained in cities post-Games. Examining the case of Rio de Janeiro, Rodrigues and Legroux (2014; 2015) argue the transport investments in preparation for the 2014 World Cup and 2016 Olympic Games are misaligned with the long term needs of the city, and raise the hypothesis that the transport legacy will likely exacerbate the socio-spatial inequalities in the wider metropolitan area. Despite the contribution of these studies, there is no evaluation of how the transport legacy has changed people's access to key activities in host cities (e.g. employment, education, healthcare, affordable food), a crucial question to understand how mega-events affect the everyday life of local residents after the events are over, and to assess which social groups benefit from those transport investments.

In the empirical analysis of this paper, we make a before-and-after comparison, calculating employment accessibility changes that have resulted from the new investments in Rio's transport system between 2013 and 2015 and compare how accessibility gains vary across different social groups and areas of the city. We use cumulative-opportunity measures to evaluate transport accessibility in terms of how many jobs people can reach from their residence using public transport and walking. To account for differences in individuals' time constraints, we consider the frequencies and speeds of public transport service to compute accessibility levels between 6:00 am and 9:00 am within different trip length thresholds (30, 60, 90 minutes) departing at every 10 minutes. Accessibility values are calculated over a regular grid of 500 x

500 meters and compared for different areas of the city and their average income levels. To do so, we use a combination of datasets, including the 2010 population census of Brazil, a geocoded register of formal jobs organized by the Ministry of Labor and Employment, and detailed information of the public transport system of Rio in General Transit Feed Specification (GTFS) format.

Preliminary analysis confirm that the proportion of the population leaving within a 1km radius of medium and high capacity transit corridors (subway, trains and BRTs) have increased from roughly 35% in 2010 to 45% in 2015 (ITDP, 2015). However, the next step of this paper will provide a more thorough analysis that takes into account the spatial distribution of employment opportunities and how the transformations in the city's transport network (service frequency, speed, connectivity etc) have shaped peoples accessibility in Rio.

References:

- Andranovich, G., Burbank, M. J., & Heying, C. H. (2001). Olympic Cities: Lessons Learned from Mega-Event Politics. *Journal of Urban Affairs*, 23(2), 113–131. doi:10.1111/0735-2166.00079
- Armstrong, G., Hobbs, D., & Lindsay, I. (2011). Calling the Shots The Pre-2012 London Olympic Contest. *Urban Studies*, 48(15), 3169–3184. doi:10.1177/0042098011422397
- Baade, R. A. (1996). Professional Sports as Catalysts for Metropolitan Economic Development. *Journal of Urban Affairs*, 18(1), 1–17. doi:10.1111/j.1467-9906.1996.tb00361.x
- Baade, R. A., & Matheson, V. A. (2004). The Quest for the Cup: Assessing the Economic Impact of the World Cup. *Regional Studies*, 38(4), 343–354. doi:10.1080/03434002000213888
- Badcock, B. (1984). *Unfairly structured cities*. Oxford: Blackwell.
- Chalkley, B., & Essex, S. (1999). Urban development through hosting international events: a history of the Olympic Games. *Planning Perspectives*, 14(4), 369–394. doi:10.1080/026654399364184

- Collins, A., Flynn, A., Munday, M., & Roberts, A. (2007). Assessing the Environmental Consequences of Major Sporting Events: The 2003/04 FA Cup Final. *Urban Studies*, 44(3), 457–476. doi:10.1080/00420980601131878
- Collins, A., Jones, C., & Munday, M. (2009). Assessing the environmental impacts of mega sporting events: Two options? *Tourism Management*, 30(6), 828–837. doi:10.1016/j.tourman.2008.12.006
- Currie, G., & Shalaby, A. (2012). Synthesis of Transport Planning Approaches for the World's Largest Events. *Transport Reviews*, 32(1), 113–136. doi:10.1080/01441647.2011.601352
- Flyvbjerg, B., & Stewart, A. (2012). Olympic Proportions: Cost and Cost Overrun at the Olympics 1960-2012 (SSRN Scholarly Paper No. ID 2238053). Rochester, NY: Social Science Research Network. Retrieved from <http://papers.ssrn.com/abstract=2238053>
- Gaffney, C. (2010). Mega-events and socio-spatial dynamics in Rio de Janeiro, 1919-2016. *Journal of Latin American Geography*, 9(1), 7–29. doi:10.1353/lag.0.0068
- Gold, J. R., & Gold, M. M. (2011). *Olympic cities : city agendas, planning and the world's games, 1896-2016* (2nd ed.). London: Routledge.
- Gratton, C., Shibli, S., & Coleman, R. (2005). Sport and Economic Regeneration in Cities. *Urban Studies*, 42(5-6), 985–999. doi:10.1080/00420980500107045
- Harvey, D. (2009). *Social Justice and the City - Revised Edition*. Athens: University of Georgia Press.
- Hausman, D. M., & McPherson, M. S. (2006). *Economic analysis, moral philosophy, and public policy* (2nd ed.). New York ; Cambridge: Cambridge University Press.
- Hensher, D. A., & Brewer, A. M. (2002). Going for gold at the Sydney Olympics: How did transport perform? *Transport Reviews*, 22(4), 381–399. doi:10.1080/01441640110121112
- Hiller, H. H. (2000). *Mega-events, Urban Boosterism and Growth Strategies: An Analysis of the Objectives and Legitimations of the Cape Town 2004 Olympic*

Bid. *International Journal of Urban and Regional Research*, 24(2), 449–458.
doi:10.1111/1468-2427.00256

- ITDP - Instituto de Políticas de Transporte e Desenvolvimento (2015) BRT Transcarioca: Relatório da análise de impacto.
- Jones, C. (2001). A level playing field? Sports stadium infrastructure and urban development in the United Kingdom. *Environment and Planning A*, 33(5), 845 – 861. doi:10.1068/a33158
- Kasimati, E. (2003). Economic aspects and the Summer Olympics: a review of related research. *International Journal of Tourism Research*, 5(6), 433–444. doi:10.1002/jtr.449
- Kassens-Noor, E. (2010). Sustaining the Momentum. *Transportation Research Record: Journal of the Transportation Research Board*, 2187, 106–113. doi:10.3141/2187-14
- Kassens-Noor, E. (2013). Transport Legacy of the Olympic Games, 1992–2012. *Journal of Urban Affairs*, 35(4), 393–416. doi:10.1111/j.1467-9906.2012.00626.x
- Legroux, J. (2014). From discourse to reality: impacts of Rio’s “transportation revolution” on socio-spatial justice. In L. C. de Q. Ribeiro, *The Metropolis of Rio de Janeiro: a space in transition* (1st ed., pp. 343–372). Rio de Janeiro: Letra Capital.
- Liu, M., Mao, B., Huang, Y., ... Chen, S. (2008). Comparison of Pre- & Post-Olympic Traffic: A Case Study of Several Roads in Beijing. *Journal of Transportation Systems Engineering and Information Technology*, 8(6), 67–72. doi:10.1016/S1570-6672(09)60006-4
- Mao, B. (2008). Analysis on Transport Policies of Post-Olympic Times of Beijing. *Journal of Transportation Systems Engineering and Information Technology*, 8(6), 138–145. doi:10.1016/S1570-6672(09)60011-8
- Minis, I., & Tsamboulas, D. A. (2008). Contingency Planning and War Gaming for the Transport Operations of the Athens 2004 Olympic Games. *Transport Reviews*, 28(2), 259–280. doi:10.1080/01441640701628685

- Müller, M. (2015). The Mega-Event Syndrome: Why So Much Goes Wrong in Mega-Event Planning and What to Do About It. *Journal of the American Planning Association*, 81(1), 6–17. doi:10.1080/01944363.2015.1038292
- Paddison, R. (1993). City Marketing, Image Reconstruction and Urban Regeneration. *Urban Studies*, 30(2), 339–349. doi:10.1080/00420989320080331
- Raco, M. (2014). Delivering Flagship Projects in an Era of Regulatory Capitalism: State-led Privatization and the London Olympics 2012. *International Journal of Urban and Regional Research*, 38(1), 176–197. doi:10.1111/1468-2427.12025
- Robbins, D., Dickinson, J., & Calver, S. (2007). Planning transport for special events: a conceptual framework and future agenda for research. *International Journal of Tourism Research*, 9(5), 303–314. doi:10.1002/jtr.639
- Roche, M. (1994). Mega-events and urban policy. *Annals of Tourism Research*, 21(1), 1–19. doi:10.1016/0160-7383(94)90002-7
- Rodrigues, J. M., & Legroux, J. (2015). A questão da mobilidade urbana na Região Metropolitana do Rio de Janeiro: reflexões a partir dos projetos de infraestrutura para megaeventos esportivos. In D. G. Castro et al. (Ed.), *Rio de Janeiro. Os impactos da copa do mundo 2014 e das Olimpíadas 2016* (1st ed.). Rio de Janeiro: Letra Capital.
- Rubalcaba-Bermejo, L., & Cuadrado-Roura, J. R. (1995). Urban Hierarchies and Territorial Competition in Europe: Exploring the Role of Fairs and Exhibitions. *Urban Studies*, 32(2), 379–400. doi:10.1080/00420989550013149
- Shin, H. B., & Li, B. (2013). Whose games? The costs of being “Olympic citizens” in Beijing. *Environment and Urbanization*, 0956247813501139. doi:10.1177/0956247813501139
- Van Wee, B. (2012). How suitable is CBA for the ex-ante evaluation of transport projects and policies? A discussion from the perspective of ethics. *Transport Policy*, 19(1), 1–7. doi:10.1016/j.tranpol.2011.07.001
- Vanwynsberghe, R., Surborg, B., & Wyly, E. (2013). When the Games Come to Town: Neoliberalism, Mega-Events and Social Inclusion in the Vancouver 2010

Winter Olympic Games. *International Journal of Urban and Regional Research*, 37(6), 2074–2093. doi:10.1111/j.1468-2427.2012.01105.x

- Zhang, L., & Zhao, S. X. (2009). City branding and the Olympic effect: A case study of Beijing. *Cities*, 26(5), 245–254. doi:10.1016/j.cities.2009.05.002