



Mega-event effects on the housing market: Evidence from the Beijing 2008 Olympic Games

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ABSTRACT

Mega-event regeneration involves extensive government funds and public participation; thus, this study emphasises the importance of verifying if these financial and human investments can be justified by the net effects of mega-event regeneration. Accordingly, the contingent valuation method is used to establish a framework to quantify the welfare effects of event regeneration from the economic, social and environmental perspectives. We proposed a theoretical framework that enables the ranking of various event regeneration effects based on public welfare improvement. This holistic approach takes into account changes in economic, environmental, and social housing conditions due to mega-event simultaneously. This leads to more reliable estimation of mega-event effects on housing market. Our empirical findings indicate that, overall, accessible public transport, a sense of feeling good, air quality, relieved traffic congestion and green space are the top five welfare enhancers. Nevertheless, residents from different housing sectors or geographic regions value mega-event effects differently. Our results can assist the government to efficiently allocate limited public resources by looking after public needs. A better understanding of the heterogeneity of event regeneration effects on different housing sectors and geographic locations will also help governments to tailor public policies based on various social groups.

1. Introduction

Staging mega-events has emerged as a significant contribution to the public policy of cities that seek economic growth, urban development and city branding. Often, the attractions that surround events are linked to a reimagining process and strategies of urban regeneration (Bianchini & Schwengel, 1991; Roche, 1994; Loftman & Spirou, 1996). The hosting of mega-events is often justified in terms of direct or indirect long-term economic, social and environmental consequences (Mules & Faulkner, 1996).

Under the guise of mega-event preparation, urban regeneration has been increasingly regarded as a panacea by city governments to solve urban problems, accelerate physical change and ensure social cohesion. Event regeneration policies often exert multi-dimensional and long-term effects on the host city. The effect on the housing sector is particularly notable given the heavy involvement of public institutions and the broad range of policy targets involved. As key components of physical regeneration, infrastructure development (Ritchie & Lyons, 1990; Mihalik & Simonette, 1998; Gratton et al., 2005; Wei & Yu, 2006; Atkinson, Mourato, & Szymanski, 2008; Walton, Longo, & Dawson, 2008) and event facility construction (Konstantaki & Wickens, 2010; Mihalik & Simonette, 1998; Ritchie & Lyons, 1990) can significantly

improve housing conditions, thereby enhancing resident welfare. Environmental quality, which is often measured by green public space and fresh air, is also important in influencing resident living conditions and well-being (Chalkley & Essex, 1999; Deccio & Baloglu, 2002). By contrast, the effect from event-associated social regeneration on resident housing conditions is often indirect and subtle. For example, improved national and community safety, which results from combined public security measures and civic order patrols, can improve housing conditions (Kim et al., 2006; Kim & Petrick, 2005; Ritchie, Shipway, & Cleeve, 2009). A people-oriented policy that promotes public participation in decision-making processes for community development effectively enhances a sense of belonging and civic pride in residents (Chalkley & Essex, 1999; Raco, 2004; Smith, 2012).

Despite the positive effects of mega-event regeneration, its adverse consequences are eliciting concern. Infrastructure development and facility construction are the vital components of physical regeneration and often increase surrounding property prices and the living cost of the host city (Malfas, Theodoraki, & Houlihan, 2004). Environmental degradation, such as construction waste, air pollution and noise, may occur (Deccio & Baloglu, 2002). The core theme of social regeneration, that is, promoting public participation and involvement, has resulted in the multitudes that flock for the event and often lead to the crowded use

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of public resources, traffic congestion and potential threat of increasing crime rate, as well as hostility from the locals (Atkinson et al., 2008; Davies, 2005; Konstantaki & Wickens, 2010; Mihalik & Simonette, 1998; Walton et al., 2008).

Staging mega-events can stimulate extensive economic, social and environmental effects on the host city that can significantly influence local resident welfare either positively or negatively. However, the intersection between event effects and resident welfare change has not been quantified and analysed adequately. The majority of existing event studies are characterised as case-specific and qualitative research for example Zhang and Zhao (2009) because the effects of event regeneration tend to be 'intangible' and cannot be directly measured in the marketplace. Hence, quantifying their value is not an easy undertaking. The contingent valuation method (CVM) has gained increasing popularity on the valuation of non-market goods. CVM has been routinely applied in surveys to evaluate the well-being effect of non-market goods, such as improvements in transport infrastructure and environmental quality (See, for example, Dolan and Metcalfe, 2008; Atkinson et al., 2008; Hui, 1999; Adamowicz et al., 1994). This approach has received increased attention among academics in evaluating the intangible effect of mega-events. Existing CVM research conclusions are mixed. For example, Johnson, Groothuis, Whitehead, and J. C. (2001) suggested that government subsidy for a sports project cannot generate sufficient valuable public goods to justify the stadium costs based on the aggregated willingness to pay (WTP) estimates. However, an increasing number of scholars have obtained empirical evidence to support government-sponsored investment in hosting mega-events (Atkinson et al., 2008; Walton et al., 2008; Süßmuth, Heyne, & Maennig, 2010; Wicker, Prinz, & Hanau, 2011; Humphreys et al., 2011). Estimates of WTP vary substantially across different studies even for the same mega-event (Atkinson et al., 2008; Walton et al., 2008). The variation can largely be attributed to the different public goods investigated. Therefore, a complete list of various public goods generated by the event should be included to establish a holistic and reliable account of the event effects. Failure to conduct a holistic analysis will lead to a misunderstanding (i.e. either under- or over-estimation) of the effects and ultimately cause misallocation of scarce public resources. This may discourage public enthusiasm on and participation in mega events, and subsequently result in a reduction in general social welfare.

Most of the CVM studies on event regeneration effects concentrate on an isolated aspect of the event effects (Humphreys et al., 2011; Wicker et al., 2011; and Heyne, Maennig, & Süßmuth, 2007), thereby failing to measure holistically the welfare value of mega-event regeneration. Scholars who have attempted to provide a holistic assessment for the event effects often failed to reliably quantify individual event effects considered in monetary terms (Atkinson et al., 2008; Walton et al., 2008). To bridge the gap in the literature, we set up a theoretical model that quantifies the welfare effects of mega-events from the economic, environmental and social aspects. The framework can be used by to better understand stakeholder preference towards hosting mega-events, and to allocate public resources efficiently and effectively.

Another important contribution of our research is the addition of empirical evidence from China to the literature. Most studies are derived from developed countries (Atkinson et al., 2008; Walton et al., 2008; Süßmuth et al., 2010; Wicker et al., 2011; Humphreys et al., 2011). Thus, assuming that the conclusions from these studies can be generalised globally is potentially problematic due to the different economic development and cultural backgrounds among countries. Therefore, verifying whether the CVM broadly used in the West can also be applied to Mainland China, one of the rapidly growing emerging markets in the world, is of empirical importance for studies of mega-event effect in developing countries. Based on our empirical evidence, we provide policy recommendations regarding mega-event regeneration in China. For example, the divergent perceptions of the Olympic effects among private and public homeowners suggest that the

government needs to design public policies that can balance the social interest between the rich and the poor; redirecting government spending from specialised facilities to transport network and services may improve the overall social welfare; and Beijing residents are willing to support initiatives that can accomplish sustainable environmental improvements. Our study can serve as valuable and relevant references for similar studies in developing countries.

The rest of this paper is organised as follows. The methodology section presents the theoretical underpinning and the general form of our theoretical model. The next section provides the institutional background of this study by defining and discussing the complete effects of the Olympic Games and the areas affected by the mega-event regeneration. The following section introduces the survey design and data collection process, followed by empirical evidences and discussions. The final section concludes with policy recommendations.

2. Methodology

Our theoretical model stems from Hui (1999), where WTP is a function of resident's characteristics, property traits and changes in housing conditions. Specifically, the improvement of resident's well-being is determined by five groups of variables: the economic, environmental and social effects of event regeneration on the housing conditions; demographics, and property traits. Ordinary least squares (OLS) method is routinely used to disaggregate and quantify welfare changes from individual event effects on the housing market (i.e. a hedonic approach). We follow this practice by using OLS to establish the relationship between well-being improvement and the above-mentioned variables, as outlined below.

$$\text{Well-being improvement} = f(\Delta h_{eco}, \Delta h_{envir}, \Delta h_{soc}, S, P), \quad (1)$$

where Δh_{eco} , Δh_{envir} , and Δh_{soc} are the changes in economic, environmental, and social housing conditions due to mega-event respectively, S is a matrix of household demographic characteristics, and P is a matrix of property attributes.

Δh_{eco} refers to the change in economic housing conditions that influences resident welfare in the host city. It generally includes measurements of event facility and stadia, travel cost, transport infrastructure, housing price appreciation and income growth. Variables that are often used to evaluate the welfare effects of changes in environmental housing conditions Δh_{envir} include green space ratio, cultural landmarks, parks, and air quality. The welfare effect of change in social housing conditions, Δh_{soc} , can be determined by measuring the feel-good factor, neighbourhood security, traffic congestion and overcrowdedness. If several or all of the coefficient estimates of variables in each category are statistically significant, the proposition that residents are willing to pay for the change in economic, social and environmental housing condition is empirically confirmed.

The hosting of mega-events may constitute positive change for several households and negative change for others. For example, event-led infrastructure development and environmental upgrades can substantially improve housing conditions and benefit residents in the surrounding area. By contrast, compulsory land acquisition and housing demolition for event-related developments and social regeneration can cause involuntary housing relocation, thereby making low-income residents' lives considerably difficult (Malfas et al., 2004). Olds (1998) also finds that accelerated urban restructuring is necessary to support major events in most cases; in such cases, the socially disadvantaged suffer disproportionately. The construction of sports facilities and landmark architecture can be used as new leisure facilities after the event and improve the urban landscape. These world-standard facilities may not be accessible by the deprived households, which typically are public housing occupiers, because of the geographic distance and affordability constraints. Hosting mega-events stimulates discrepant effects on resident welfare and cause further disparity and imbalance between different social groups (Wang, Bao, & Lin, 2015). Furthermore,

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