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Investigating residents' attitudes of 2016 Olympic Games: examining socio-cultural, economic and environmental dimensions

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Introduction

Olympic Games have taken up one of the top ranks and most prestigious status (Essex and Chalkley, 1998) among mega events category globally. It has the potential to enhance the image of host cities and countries (Lee et. al, 2012) by providing an arguably unparalleled amount of opportunities in relation to economic (Faulkner, et. al., 2000, Konstantaki and Wickens, 2010), and socio-cultural growth and development (Waitt, 2003). In addition to attracting a global audience including tourists and investors it also presents an opportunity for host cities to build sustainable legacy in the form of infrastructure development and economic regeneration (Zhou and Ap, 2009). Moreover, it seemed to have built an aura of honour, pride and reputation not just for the host cities and respective countries but also for multiple stakeholders involved, especially its residents (Malfas et al. 2004; Prayag et al. 2013).

However, the long-term success of mega events depends considerably on the involvement of community groups, residents' in specific, right from the planning process (Prayag et al. 2013; Chen and Tian, 2015) to the delivery of the event. Residents' engagement in the decision making can increase overall support for the event (Ritchie, Shipway and Cleeve 2009). The support of residents' towards hosting a mega event relies on the anticipated direct benefits and its balance in relation to costs (Bob and Swart, 2009). The achievement of such long-term success depends on the holistic involvement of community groups, residents' in specific, in the planning of the mega events (Prayag et al. 2013). The perceptions and attitudes of local residents toward such events are important, right from the planning process through to successfully achieving sustainable development (Chen and Tian, 2015). Their engagement in the decision making can increase overall support (Ritchie, Shipway and Cleeve 2009). Hence, organizers and investors need to consider residents' perspectives in decision making and the involvement should be through community participation processes (Pappas, 2014). The residents' perspectives towards mega-events such as the Olympic Games may become key indicators of social impact assessment deriving integrated community interests (Ritchie, Shipway and Cleeve 2009). Their support is crucial to win a bid for any mega event and subsequently to organize the event successfully (Liu, 2016).

Moreover, despite the extensive coverage of studies investigating residents' perspectives on the economic impacts of mega-events including Olympic Games so far (Faulkner et. al., 2000), there is a lack of research that includes broader dimensions covering social, cultural and environmental aspects in addition to the economic aspects (Kim and Petrick, 2005; Ritchie, Shipway and Cleeve, 2009, Prayag, et. al., 2013; Gaffney, 2010; Karadakis and Kaplanidou, 2012). In this context, unlike previous research this study delineates mega-events' impact explaining support to the event using a triple bottom line approach (considering social and environmental impacts in addition to key economic impacts) from sustainability perspective (Mish and Scammon, 2010), one that provides new dimension in place marketing and management literature when investigated through residents' lens. It is critical to understand residents' perceptions as an indicator including a general need for social impact assessment and also for the integration of megaevents with sustainability elements (Zhou and Ap, 2009). Residents are generally in favor of mega events that contribute socially, economically and environmentally to a given destination (Custódio, Azevedo and Perna, 2018; Deccio and Baloglu, 2002).

From theoretical perspective, there is limited research investigating the residents' attitudes and support of mega events considering the perspectives of those residing in a host city and a non-host city at the same time. In fact, most of the studies have focused only on the residents of the host city (Gursoy et. al, 2011; Gursoy and Kendall, 2006; Jin et. al, 2011; Kim et. al, 2015; Konstantaki and Wickens, 2010; Liu, 2016; Prayag, et. al., 2013; Ritchie and Lyons,1990), while just a few concentrated on non- host residents (Deccio and Baloglu, 2002; Ritchie, Shipway and Cleeve, 2009) and a small number focused on both (Chen and Tian, 2015; Karadakis and Kaplanidou, 2012). This comparison can be beneficial because it can go beyond the simple associations between the economic, socio-cultural, environmental impacts and the residents' support before the Games, making it possible to verify if the place of residence moderates these associations. It allows to comprehend the extent to which residents' participation can affect the overall support of hosting a mega event like the Olympic Games, showing cases (non-host versus host residents) where impact higher on support. Thus, an understanding of factors that alters the magnitude of the relationship is likely to contribute theoretically to the field of residents' support (Prayag, et. al., 2013).

From the managerial perspective, this examination reveals the magnitude of mega-event hosting policies, programs, and interventions at a national level (Karadakis and Kaplanidou, 2012), and not only at the host city level. Managers can implement variety of actions to enhance support in the host city and outside the host city. Depending on the way that host, and non-host residents perceive socio-cultural, economic and environmental impacts, the approach used to increase the support of these two groups must be unique and diverse, consisting in discriminant public policies and customised communications strategies. It is important for managers to be able to differentiate the marketing and communications strategies to enhance the support before a mega event such as Olympic games. Therefore, this study intends to examine residents' perceptions of hosting a mega event, comparing both host and non-host residents' perceptions before the 2016 Rio de Janeiro Olympic Games and make an insightful contribution into tourism and mega events literature supporting future managerial decisions.

Literature review

Residents' attitudes towards events

In order to establish academic significance for investigating resident's attitudes for activities and events related to tourism development including mega-events, social exchange theory is most commonly used (Andereck and Vogt, 2000; Chen and Tian, 2015; Karadakis and Kaplanidou, 2012; Prayag et al. 2013; Nunkoo and Gursoy, 2012). According to this theory, feelings or psychological states result from the experiences conveyed "symbolically through the objects exchanged, the functions performed by the exchange, or the meanings attributed to the exchange" (Bagozzi, 1975:138). A positive perception is suggested to occur only when both factors have high levels of social power within the exchange relationship (Waitt, 2006). In contrast, negative perceptions are linked to low level of social authority amongst key players, since they perceive reduced amount of benefit from the exchange (Ward and Searle, 1991). For this reason, literature

on social exchange in the planning, organizing, delivery and impacts of mega events, Olympic Games for the purpose of this study, have been reviewed.

Residents' perceptions of and attitudes toward tourism development could be appropriately analysed using social exchange theory (Diedrich and García-Buades, 2009; Vargas-Sánches, de los Ángeles PlazaMejía, and Porras-Bueno 2009; Lee, 2013; Wang and Pfister, 2008). In this context, the works of Emerson, (1976) and Homans, (1958) has outlined the critical importance of valued items (for individuals) and suggest that these individuals are likely to participate in an exchange if they believe costs will not exceed rewards. In addition, it is assumed that in an exchange situation, there is a tendency for a person to be inclined towards less costs and bigger rewards, e.g. maximum tangible (and or) gains (Homans, 1958). Similarly, social exchange theory, when linked to mega events especially, can imply that residents are likely to support such events if there is a belief or presumption that expected benefits of development would surpass costs incurred (Gursoy and Kendall, 2006), and are more likely to support tourism development (Ap, 1992). Thus, they can change their perceptions toward mega events after weighing the benefits and costs (Chen and Tian, 2015).

The three key areas: economic, environmental and sociocultural aspects, covered by social exchange theory could be insightful in determining how residents, from various sects of the society, will react and perceive to the future development plans (Andriotis and Vaughan, 2003), for e.g. how residents will perceive possible benefits and costs associated to the bid and host of a mega event such as the Olympic Games.
Since both positive and negative impact variables could be established simultaneously using social exchange theory, this could be equally useful in understanding residents' perspectives towards mega-events (Ap, 1992). Therefore, this theory is considered appropriate for studying residents' perceptions of mega events, because it can explain their motivations and reasons for engaging, or even their lack of support (Deccio and Baloglu, 2002). If residents perceive benefits from the event, they probably will be supportive of hosting such events in the future (Kim et. al, 2015).

In general, because of the publicity and excitement generated by various media outlets, and the mega event organisers, local residents are led to perceive that expected benefits of development would surpass costs incurred (Kim, Gursoy and Lee, 2006). However, they only obtain an acceptable level of benefits from the social exchange rather than a maximum benefit (Waitt, 2003). According to the social exchange theory this suggests that residents will support the event as a result, as found by Bob and Swart (2009), Pappas (2014), Pillay and Bass (2008) and Ritchie, Shipway and Cleeve (2009) but they might not be fully satisfied.

Besides, Zhou and Ap (2009) reported in their study that local Beijing residents held highly positive perceptions towards the impacts of the Olympic Games (categorized in economic, social life, urban development and social-psychological impacts) and also a strong support for the event. Specifically, this research found that residents who had a positive attitude towards government performance or tourism development were more favorable towards event's impact and more supportive of the event overall. Furthermore, the residents' support to a mega event is essential as they are key to promote and provide

a *welcoming* atmosphere by being friendly and hospitable to tourists (Karadakis and Kaplanidou, 2012), offering them a good experience and also transmitting a positive image of the host city (ultimately country) and its population. Thus, events and games organisers, and host governments must consider the views of the host residents and influencing community groups to achieve long term sustainability objectives as a result of mega events (Zhou and Ap, 2009). As a result, it is clear that the decision makers need to consider perceptions and attitudes of local residents (Chen and Tian, 2015) and also to increase the potential for the involvement of them in the planning process (Pappas, 2014).

Therefore, building in social exchange theory and the mega events, we can state that public discussions about the benefits and costs associated to the event, along with residents' involvement can result in a consensus over how to minimize negative impacts and increase benefits (Gursoy and Kendall, 2006). This can lead residents in the exchange and by consequence can increase their support for hosting a mega event such as the Olympic Games.

In addition, historically, it is possible to notice that the reward or benefit of hosting an Olympic Games surpass the costs incurred in residents' perceptions. This is also consistent with social exchange theory, once individuals are more inclined toward rewards (Homans, 1958), and in the case of Olympic Games these benefits are extremely visible, particularly before the event, which is the period focused in this research.

This discussion leads to the main hypothesis of this study:

H1. There is a direct positive relationship between perceived impacts and support for hosting the Olympic Games of Rio de Janeiro.

The three main elements of the exchange process are economic, environmental and sociocultural benefits (Andriotis and Vaughan, 2003) are reviewed in the next sections of the paper and lead to a decomposition of the main hypothesis.

Socio-cultural impacts

A variety of evaluations from resident perceptions and attitudes of tourism impacts could be captured by using social exchange theory, but predominantly in terms of experiential and psychological domains. Feelings or psychological states result from the experiences conveyed "symbolically through the objects exchanged, the functions performed by the exchange, or the meanings attributed to the exchange" (Bagozzi, 1975:138). In relation to this, sporting events have several socio-cultural values, reaching out extensively beyond the games/events itself (Cornelissen and Swart, 2006). Researchers identify a range of positive and negative socio-cultural impacts associated with mega sporting events (Chen and Tian, 2015; Deccio and Baloglu, 2002; Gursoy and Kendall, 2006; Kim et. al, 2015; Pillay and Bass, 2008; Ritchie and Lyons, 1990; Ritchie, Shipway and Cleeve, 2009). A positive perception is suggested to occur only when both factors have high levels of social power within the exchange relationship (Waitt, 2006). On the other hand, negative perceptions are linked to a low level of social authority amongst key players, since they perceive a reduced amount of benefit from the exchange (Ward and

Searle, 1991). Consequently, in the tourism setting, residents who perceive rewards of either maintenance or improvement of their social and economic well-being are likely to evaluate the event positively overall (Ap, 1992).

"For example, the Sydney Olympics was an opportunity for New South Wales to showcase the material and symbolic transformation of a marginal brownsite of noxious industries and dump, to a central, vibrant, clean and green economic base" (Waitt, 2003: 207). The Games were an opportunity for Australia to showcase both its modern- cosmopolitan lifestyle and aboriginal cultural heritage during the opening ceremony (Rivenburg et al., 2004). Additionally, London 2012 Olympic Games aspired to help reconnect communities and residents across the UK, infuse social change and foster welcoming and passionate culture of volunteering.

Furthermore, hosting sport mega events is also considered as an influencing driver from social and political perspectives to support governmental derivates (Prayag et. al, 2013). For example, the 2010 FIFA World Cup was considered as an opportunity for South Africa to reduce poverty by supporting improvement campaigns to living conditions of the historically disadvantaged and to re-design apartheid cities (Pillay and Bass, 2008). Also, the 2008 Beijing Olympic Games was viewed by most as a way to narrow the cultural distance between China and the outside world (Zhou and Ap, 2009). The London Games 2012 Olympic Games brought several positive social impacts such as sustainable living, respect and equality providing better opportunities to the residents and wider communities, as a result.

Other socio-cultural benefits associated with mega-events are strengthening of community cultural values and building of nation/community identity (Prayag et. al, 2013), are common in tourism development studies (Andriotis and Vaughan, 2003). There are also more positive aspects, such as civic pride, community image, fostering political consolidation (Kim et. al, 2015), improved cohesion and quality of civilization (Chen and Tian, 2015), feeling of inclusion and community or national unity (Karadakis and Kaplanidou, 2012), cultural exchange of values and experiences between tourists and residents (Kim, Gursoy and Lee, 2006) and of course, the sports legacy (Duignan, 2018), that involves knowledge about coaching and the idea that sport is itself a cultural good (Preuss, 2015).

On the negative side, increased tension within communities may happen as a result of an influx of people from diverse cultural background including migrant workers, and also law enforcement may occur once the pressure associated with an influx of people and security concerns may place a major strain on law enforcement officials (Ritchie, Shipway and Cleeve, 2009). Other possible problems are congestion, disruption (Atkinson et. al, 2008), disorder, security issues (Kim et. al, 2015) and crowding (Ritchie, Shipway and Cleeve, 2009).

Therefore, when balancing the socio-cultural benefits and costs of an event such as the Rio Olympic Games 2016, these benefits may overlap the expected costs as suggested in some studies (Liu, 2016; Ritchie, Shipway and Cleeve, 2009; Waitt, 2003). This probably happens because many residents show pride and excitement, simply because their country

is hosting a mega event (Custódio, Azevedo and Perna, 2018). Moreover, community pride and national identity are strong social positive aspects and normally grow before and during mega events such as the Olympic Games. Regardless of the negative socio-cultural impacts, the residents have a tendency towards the positive socio-cultural aspects, which according to social exchange theory, implies that an exchange will probably occur, increasing the residents' support for hosting the Games:

H1a. There is a direct positive relationship between perceived socio-cultural impacts and support for hosting the Olympic Games of Rio de Janeiro.

Environmental impacts

Mega events can serve as catalysts for bringing attention to environmental concerns (Deccio and Baloglu, 2002). However, the environmental impacts are probably the most neglected of the impacts explored in the mega events literature (Al- Emadi et. al, 2016) and studies that comprise residents' perceptions of environmental impacts and security risks at Olympic Games are scarce (Konstantaki and Wickens, 2010).

Therefore, this study contributes to the literature on mega events theory by considering the impact of this dimension.

These events can bring positive benefits associated with the protection of the natural heritage resources (Chen and Tian, 2015). They are promoters of environmental and landscape restoration in the host city and surrounding areas (Prayag et. al, 2013), responsible for preservation of the physical landscape and local heritage (Deccio and Baloglu, 2002), and they may minimize the local damage environment (Karadakis and Kaplanidou, 2012). Other possible positive impacts are new green areas (parks) and strengthened environmental awareness (Preuss, 2015).

On the other side, major events can be associated with negative environmental and social externalities, which risk making the overall costs from playing host larger than the benefits (Jakobsen et. al, 2013). These mega events can generate negative consequences on the environment such as changes of land use, pollution of beaches, lakes and deterioration of cultural or historical resources (Gursoy et. al, 2011; Kim, Gursoy and Lee, 2006), cause ecological damage, additional waste, increased carbon footprint (Preuss, 2015). They can also influence harmfully the physical environment (Gursoy and Kendall, 2006), causing problems like noise pollution (Lee et. al, 2012), traffic congestion.

In this context, mitigating negative impacts has become an increased priority in mega events (Collins, Jones and Munday, 2009). The Sydney 2000 Olympic Games is an example of environmentally viable Games and its positive environmental impact was mainly attributed to careful planning by the Sydney Organizing Committee for the Olympic Games (Konstantaki and Wickens, 2010). In the Japan and Korea 2002 World Cup, a large-scale park around each stadium was constructed on reclaimed landfill, the air quality control system around each stadium had been developed and monitored by civil servants and residents and the Seoul municipal government had actively publicized

an environmentally aware World Cup through its homepage and through various information channels (Kim and Petrick, 2005).

Years later, the Beijing Olympic Games 2008 preparation included environmental measures applied by the government to reduce air pollution and improve the air quality, trying to reduce and control the pollutants emissions, to increase energy efficiency and to find other sources of energy (Jin et. al, 2011).

Therefore, efforts have been made to mitigate the negative environmental impacts and enhance the positive environmental effects. In addition, government and organizers communicate these efforts prior to the event, focusing on build a positive image of the country internationally. Then, the relationship between environmental impacts and residents' support seems positive, as they perceive overall more benefits to the environment than costs.

This is in accordance with the principle of social exchange theory supports development of the following hypothesis:

H1b. There is a direct positive relationship between perceived environmental impacts and support for hosting the Olympic Games of Rio de Janeiro.

Economic impacts

Mega events affect entire economies and echo in the global media (Lim and Lee, 2006). Then, substantial economic impacts can be expected from mega events (Müller and Moesch, 2010) once they are an important generator of the economic activity of a host region (Lee et. al, 2012).

This economic dimension has been receiving most research attention (Liu, 2016). The focus on these impacts is justified once mega events require massive private and public-sector investments and the economic long-term spinoff effects are still the main reason for justifying bidding and hosting for mega events (Maennig and Zimbalist, 2012).

The biggest investments in events such as the Olympic Games come from construction and infrastructure, such as road and railway construction, improvement of airports, the building of convention centres and hotels, development of telecom systems and attempts to revive poor areas (Jakobsen et. al, 2013).

The spinoff effects can be employment creation, improved public spaces, tax revenues and tourism development (Hiller, 2006). Also, hosting a major event can attract foreign direct investment (Jakobsen et. al, 2013), increase business opportunities (Zhou and Ap, 2009) and local income (Plessis and Maennig, 2011), enhance quality of life (Lee et. al, 2012; Ramseook-Munhurrun and Naidoo, 2011), stimulate urban development and regeneration (Atkinson et. al, 2008; Hiller, 2006; Konstantaki and Wickens, 2010; Ritchie, Shipway and Cleeve, 2009; Zhou an Ap, 2009), create awareness (Plessis and Maennig, 2011), project positive images and enhance destination image and country's image (Atkinson et. al, 2008; Chen and Tian, 2015; Kim, Gursoy and Lee, 2006; Lee et.

al, 2012; Pillay and Bass, 2008; Preuss, 2015; San Martín Gutiérrez, Herrero and García de los Salmones Sánchez, 2018; Zhou and Ap, 2009). Finally, the event can be used as a marketing opportunity (Zhou and Ap, 2009).

These effects are in principle good consequences associated with mega events and generate benefits for the host communities, but there are many discussions and debates among the researchers in this matter. First, the costs are too high to host a mega event, especially when compared with the potential for re-use that is insufficient (Hiller, 2006; Jakobsen et. al, 2013) and with benefits associated, once the net effect (benefits vs costs) is unclear (Pillay and Bass, 2008). For instance, mega events can crowd out regular business travellers who tend to avoid the host city or country during the event (Prayag et. al, 2013), reducing the positive effects of hosting a mega event. Other situations occur when even larger cities have problems in fulfilling the high demand generated by mega events and extraordinary imports of products are necessary. In this case, if local residents spend the additional revenues on imports, this will further reduce the stimulation of the local economy (Jakobsen et. al, 2013), decreasing the net effect too, since these revenues will not benefit the host nation.

Second, some of these impacts may be only temporary, that is, they may not last after the mega events, such as employment and job opportunities (Atkinson et. al, 2008; Pillay and Bass, 2008) and international tourism positive effect on the economy after the tournament (Plessis and Maennig, 2011).

Third, the residents' perceptions and support for hosting a mega event can also change with time. For example, the results of Kim, Gursoy and Lee (2006) study revealed that residents' perceptions of the impact of the 2002 World Cup Games have drastically changed after the games. Before the games, expectations were high about the games with a lot of economic and cultural benefits, but following completion of the games, there was a recognition that the benefits generated by the games were lower than it was expected; in particular, the economic benefits were rather a big disappointment for local residents. A similar result was presented for Kim and Petrick (2005), that comparing opinions of residents' opinions and perceptions over two points in time concluded that respondents' opinion changed with time, showing a lower level in questions about patriotism and participation in future mega events. Lee et. al (2012) results also indicated that residents' perception of the effects of the 2008 Olympic Games changed after the event, but comparing positive and negative effects, the former revealed a bigger change than the latter. Thus, it is necessary to study the long-term impact on the host population so as to reveal a clearer representation of the event's impact (Lim and Lee, 2006).

On the other hand, there are negative economic impacts that result from mega events too, as the increase of taxes (Gursoy and Kendall, 2006; Kim et. al, 2015; Preuss, 2015), price inflation (Gursoy and Kendall, 2006; Maennig and Zimbalist, 2012; Plessis and Maennig, 2011; Preuss, 2015) and mismanagement of public funds (Deccio and Baloglu, 2002). Taxes may be increased to support the public sector to fund the costs related to the hosting of such events (Ritchie, Shipway and Cleeve, 2009), such as the facilities required (Gursoy and Kendall, 2006). In 2010 FIFA World Cup the costs of stadiums and the transport infrastructure were almost entirely public financed (Plessis and Maennig, 2011).

The expectations of huge tourists' arrivals are a reason for higher costs, especially in the tourism industry (Plessis and Maennig, 2011).

In general, the positive economic impacts seem to exceed the negative ones, as showed by Prayag et. al (2013), explaining a considerable difference between perceived economic positive impacts and negative impacts, at least considering a short-term perspective. This leads again to the comparison between costs and rewards and maximization of positive versus negative outcomes (social exchange theory). As stated before, the economic benefits are very visible to residents, particularly considering infrastructure and investments. Despite of possible negative impacts, in general residents are pleased with the economic outcomes of the Olympic games and following social exchange theory, this can lead to a higher support. This has been outlined in hypothesis H1c below:

H1c. There is a direct positive relationship between perceived economic impacts and support for hosting the Olympic Games of Rio de Janeiro.

Therefore, if the Brazilian residents perceive positively the social, economic and environmental impacts, it can be assumed that will support hosting the Olympic Games of Rio de Janeiro.

Moreover, comparing the economic, socio-cultural and environmental impacts of mega events, some studies discuss which one of them is most important. In this matter, a number of key studies (Deccio and Baloglu, 2002; Kim and Petrick, 2005; Kim et. al, 2015; Lee et. al, 2012; Prayag et. al, 2013) reach a conclusion that the economic factors play the most important role in residents' attitudes, support or perceptions while others (Al-Emadi et. al, 2016; Chen and Tian, 2015; Konstantaki and Wickens, 2010; Ritchie, Shipway and Cleeve, 2009) conclude that socio-cultural aspects are the most relevant.

However, as Kim and Petrick (2005) stated, the economic criteria are most emphasized by mega events authorities, due to three main reasons. First, social and cultural impacts are seen to be "external" to economic evaluations. This means that from political and developmental perspective, the creation of jobs and wider positive economic impacts are often used to justify huge state commitments and investments (Bob and Swart, 2009). Second, the social and cultural impacts are less tangible and difficult to measure. In some, the social, cultural and environmental effects are more subjective and unclear and human beings tend to be relatively neutral, which translates into less variability and weak relationships with the overall attitudes (Qi et. al, 2016). Third, the social and cultural impacts tend to be considered as negative factors and thus their measurement is not encouraged. Unlike economic impacts, social impacts can be hard to quantify (Kim et. al, 2015). Based on that, it can be inferred that economic impacts are easier to be measured and evaluated by residents than socio-cultural impacts despite social impacts of hosting mega sporting events are just as important as the economic impacts, leading to the second hypothesis:

**H2. Economic impacts are the most influential for Rio Olympic Games support.
Moderators of residents' support for hosting mega events**

According to social exchange theory, resident's perceptions of impacts are antecedents to overall attitudes and support (Prayag et al. 2013). However, the extent of these relationships may vary among some groups. Additionally, demographic characteristics constitute factors that influence residents' perceptions (Konstantaki and Wickens, 2010; Waitt, 2003), i.e, the residents' views of the socio-cultural, economic and environmental aspects of mega events may switch and differ due to their demographic profile. In this study, we propose to examine one such demographic criteria of 'place of residence' (host or non-host city).

In relation to this, a comparative research on the perception of the residents of different cities toward the same events is limited in the literature (Chen and Tian, 2015). The place of residence can have a moderating role examining resident support towards mega event, especially in societies and civic communities with diverse population composition (Al-Emadi et. al, 2016), but most research documented so far has been focused only on host city residents' perceptions (Gursoy et. al, 2011; Gursoy and Kendall, 2006; Jin et. al, 2011; Kim and Petrick, 2005; Kim et. al, 2015; Kim, Gursoy and Lee, 2006; Konstantaki and Wickens, 2010; Kim et al, 2013; Lee et. al, 2012; Lim and Lee, 2006; Pappas, 2014; Prayag, et. al., 2013; Ritchie and Lyons,1990; Waitt, 2003; Zhou and Ap, 2009).

The non-host resident's perspectives are considered only in a few studies (Chen and Tian, 2015; Deccio and Baloglu, 2002; Karadakis and Kaplanidou, 2012; Ritchie, Shipway and Cleeve, 2009). In this context, non-host city residents' viewpoints are important as different geographical and cultural origins may lead to varied perceptions and mental structures towards destination concerned (San Martín Gutiérrez, Herrero and García de los Salmones Sánchez, 2018), which could also be linked to a mega event.

However, among these studies, only Chen and Tian (2015) and Karadakis and Kaplanidou (2012) compared host and non-host residents at the same time, reaching similar conclusions. The former revealed that the host residents perceived more of the negative aspects of the 2008 Beijing Olympic Games post event, while the nonhosts observed more of the positive aspects of hosting a mega event, which may indicate a positive and broader support from non-host city residents. The latter showed a better and statistic significant evaluation of the economic, socio-cultural, legacies of 2010 Vancouver Olympic Games from non-hosts residents during and post event (pre-event had mixed results). This leads to the final hypothesis of this study as outlined below:

H3. The effect of perceived impacts on residents' support of Rio Olympic Games is moderated by the place of residence.

The residents (non-hosts and hosts) can prioritise different types of impacts. In context to this, Chen and Tian (2015), reported that Beijing residents (hosts) concentrated on environmental interests, whereas Qingdao (non-host city) residents fixated on image aspects (economic view). Karadakis and Kaplanidou (2012) found a significant difference between the two resident groups (host residents and non-host residents) in the evaluation of economic legacies. The most important aspects for Vancouver (host residents) were in order of relevance: environment and economic legacies at all three stages (pre, during, and post event).

On the other side, for Ottawa (non-host residents) the environment was also the most relevant factor but followed by socio-cultural legacies as the second most important factor at the pre-event and during phase. Post-event, Ottawa participants indicated that psychological legacies were the second most important ones.

Method

Conceptual model

The proposed conceptual model relates to the attitudinal dimensions of Rio de Janeiro Olympic Games 2016 (socio-cultural, economic and environmental dimensions) in the form of residents' support for hosting the games (H1a, H1b, H1c). We expect a greater influence of the economic dimension (H2). The model also considers the moderating place of residence (H3) in this relationship. This model is structured in Figure 1.

INSERT FIGURE 1 HERE

Participants and procedure

The Summer Olympics 2016 in Brazil was selected for this study, since it is the most recent edition of the event and few studies about its impacts are available in the literature (Lindau et al., 2016, Rocha &Fink, 2017). In this regard, this paper seeks to complement the literature on Brazil's country brand, which is relatively scarce (Giraldi, 2016). The target population of this study was defined as Brazilians residents, considering two regions; Rio de Janeiro state (the Olympic Games host city) and outside this state. A non-probabilistic convenience sampling procedure was employed for data collection. The convenience sample has been used by many studies in this area and it is permissible to verify theories (Roth and Diamantopoulos, 2009), considering that the primary purpose of this paper is not to generalize the results to the entire population of interest but to understand the influence of specific dimensions on support of hosting the Olympic Games.

The data was collected before the opening ceremony of the Rio Olympic Games, in the months leading to the event (April- June 2016). A survey was conducted with 501 participants, an appropriate number for the statistical technique used (structural equation modelling) and the method of maximum likelihood estimation. There were no missing data and 12 outliers were identified using Mahalanobis distance (D^2). These extreme values were removed from the sample according to recommendations of Hair et al. (2009). The final sample had 489 observations, in which 223 (46.2%) respondents were males, and 263 (53.8%) were females. The sample average age was 27 years old with standard deviation of 9.6, with a balance between people who live in the state of Rio de Janeiro (38.9%) and outside Rio (61.1%). These demographic characteristics vary slightly considering the respondents from Rio (host residents) and outside Rio (non-host) residents.

INSERT TABLE 1 HERE

Measures

The questionnaire was initially composed of questions related to the four research constructs: socio cultural dimension, environment dimension, economic dimension and support to the Olympic Games, following the suggestion to disaggregate the components of perceived impacts when modelling attitudes and support for mega events (Prayag, et al, 2013). After a pretest, these dimensions were adapted to Brazil's context from the work of Prayag et al (2013). They have developed this scale based on previous studies that have employed reasoned action and social exchange theory on mega events and tourism development.

The questions were measured by means of agreement based on 5-point Likert scales (ranging from 1 = Strongly Disagree to 5 = Strongly Agree). The questionnaire also included questions related to the profile of the sample: gender, age and place of residence.

The appendix 1 shows the full questionnaire.

Discussion of findings and Analysis

Exploratory Factor Analysis (EFA)

The Exploratory Factor Analysis (EFA) explores the data and provides the researcher with information on how many factors are needed to best represent those (Hair et al., 2009). This analysis was performed on the social cultural, environment and economic dimensions of the questionnaire in order to purify the scale and identify the constructs. In this step, it was checked whether the social cultural, environment and economic dimensions (which were hypothesized from the literature review) represent precisely the data in the confirmatory step of the research (confirmatory factor analysis - CFA). Furthermore, the CFA model is usually underscored by prior exploratory analyses (i.e., EFA) that have established the appropriate number of factors and the correct pattern of indicator– factor relationships (Brown and Moore, 2012).

The extraction method of factors used here was the analysis of principal components, considering the rule of eigenvalues greater than 1. To derive the final solution of factors and simplify its structure, the first matrix was rotated using the Varimax method of orthogonal rotation. The Cronbach's alpha was also checked to analyze the internal consistency of each factor.

The outcome was composed of three factors (see Table 2). However, three sentences were dropped from the original questionnaire, because of their low loads (under 0.65): (1) "The Olympic Games will provide an excellent opportunity for Brazilians to showcase their multi-cultural society", (2) "The Olympic Games will enhance Brazil's image as an entertaining and welcoming country", (3) "The legacy of Olympic Games could assist the initiatives in resolving urban violence and insecurity". In addition, the sentence "The Olympic Games has led to an increase of taxes and prices for local residents and businesses, respectively" stayed isolated from the social cultural, environment and

economic dimensions, as one factor, which does not make sense theoretically. This sentence was not used on the structural equations modelling and it is not shown in Table 2.

This solution was considered suitable according to the Bartlett sphericity test, and also the Kaiser-Meyer test-Olkin (KMO) test, which generated an index of 0.924, an excellent result according to Hair et al. (2009). The total variance explained by the factors was 65.07%, an acceptable value for a social sciences study (Hair et. al, 2009). In addition, the factor loads had values greater than ± 0.50 and there were no shared high loads among factors. The Cronbach's alpha of the three factors were all high (above 0.7), showing internal consistency, which is present on Table 2.

INSERT TABLE 2 HERE

Three relevant dimensions identified from this analysis were employed as independent variables of the structural model, comprising three exogenous constructs which related to the endogenous construct of support to the games. The latter is the dependent variable of the model, composed by the following sentences: "Generally, there is a good feeling amongst residents about hosting the Olympic Games", "Brazil should continue bidding for hosting other mega sporting events" and "As a resident I passionately support hosting the Olympic Games", which had internal validity (Cronbach's alpha of 0.764).

Confirmatory Factor Analysis

Structural Equation Modelling (SEM) applications focused only on the relations between latent variables and their indicators are referred to confirmatory factor analysis (Hoyle, 2012). This analysis was held by maximum likelihood estimation using the software Stata 12, which can examine a series of dependency relationships simultaneously (Hair et al., 2009).

Measurement model

The measurement model provided a convergent and discriminant validity, which is essential according to Brown and Moore (2012). The former was confirmed (Table 3) through the average variance extracted, which must be greater than 0.5 in each of the constructs (Nunnally, 2010) and also through composite reliability, which must be greater than 0.7 (Fornell and Larcker, 1981). The latter (Table 4) was demonstrated since the correlations between the constructs (off- diagonal) were smaller than the square roots of the extracted average variance, reported in the main diagonal, a criterion indicated by Fornell and Lacker (1981).

INSERT TABLE 3 HERE

INSERT TABLE 4 HERE

During the measurement model estimation, some re-specifications were made, based on the criteria that standardized factor loads should be greater than or equal to 0.5 (Hair et

al. 2009). As a result, four sentences were dropped from the original measurement model: (1) "The Olympic Games will promote Brazil as an sporting-hub", (2) "The Olympic Games has brought in opportunities for employment for the residents", (3) "The Olympic Games will increase business opportunities in Brazil" and (4) "The huge investment required in order to host the Olympic Games is justified in terms of sustainable economic benefits that may be generated for the residents". These criteria help to achieve a best adjusted and robust measurement model.

The final model did not present any multicollinearity, because the greatest correlation between two variables was 0.7615 (below 0.8) and acceptable according to Katz (2011). It showed multivariate normality, according to the tests of asymmetry and kurtosis of Mardia (1970), the kurtosis test of Doornik-Hansen (2008), and the asymmetry test of Henze-Zirkler (1990), which implied in the homoscedasticity of the residues according to Kline (2012).

After this validation of the measurement model, it was necessary to analyze the structural model.

Structural model

The structural model (Table 5) was evaluated first considering the standardized coefficients.

INSERT TABLE 5 HERE

These coefficients represent the strength of relationships between the three dimensions (social, environmental and economic), that are the independent constructs and the support to the games dimension (the dependent construct). They should be different from zero, significant to 5%, considering the criteria set out by Hair et al. (2009). All of the relations between constructs and the dependent variables were positive and significant, except for the environmental dimension ($\beta=0.039$; $p>0.05$). This has supported H1a and H1c, but the rejected H1b. Furthermore, the economic dimension ($\beta=0.552$; $p<0.05$) was the most influential effect supporting H2.

In addition, the structural path was evaluated using the measurement of the predictive capacity of the model, i.e. its R^2 considering the construct support to the games, which was 0. 5726. The R^2 values should describe the extent of predictability of any dependent variable, whether latent or observed (Bentler and Raycov, 2000), indicating in this case that the socio cultural, environment and economic dimensions explained 57.26% of the sampling variation of the support to the Games, which is a high value to the social sciences according to the parameters of Cohen (2009).

The adjustment (model fit) was also checked. In particular, there are three main classes of fit criteria: measures of absolute fit, measures of incremental fit, and measures of parsimonious fit (Hair et. al, 2009). Due to the diversity of these measures, the researcher should employ at least one incremental and one absolute index, in addition to at least one index that measures poor quality and one that is a good quality fit (Hair et. al, 2009).

Following this orientation, the χ^2, the RMSEA (Root Mean Square Error of Approximation), the CFI (Comparative Fit Index) and TLI (Trucker Lewis Fit Index) were used. Both χ^2 and RMSEA are measures of absolute fit and poor quality, while CFI and TLI are incremental and good quality measures.

In general, the model goodness-of-fit was considered appropriate according to Browne and Cudeck (1993), Marsh et al. (2004) and West et al. (2012), with significant χ^2, RMSEA = 0.076 (lower than 0.08), CFI = 0.930 (higher than 0.85) and TLI = 0.917 (higher than 0.85).

Moderating effects on residents' support

Finally, an analysis was performed regarding a possible moderating variable: place of residence. This variable was recoded and divided into different groups i.e. those residents in Rio de Janeiro state and those that resided outside Rio de Janeiro state (In Rio or Outside Rio) and submitted to χ^2 invariance tests between groups, according to Hair et. al (2009).

First, the χ^2 invariance tests between groups were developed and the variable (place of residence) showed a moderating effect with regards to the relation between the socio cultural, environment and economic dimensions, and the support to the Games construction. This happened because the difference between the chi-square was significant at a 0.05 level, when considering the general and unrestricted model in relation to the restricted model for place of residence. This means that when the parameters of the models were forced to be equal between the two groups, the statistic adjustment is degraded. These results have been reported in Table 6:

INSERT TABLE 6 HERE

After this, competing models were run comparing the place of residence between two groups. These models indicate how the moderation worked, by analyzing the standardized coefficients of the models (magnitude, signal and significance), making it possible to verify the hypothesis H3.

The results are presented in Table 7:

INSERT TABLE 7 HERE

Table 7 again demonstrated that the environmental factor has no impact on the support for hosting the Olympic Games, even when considering different groups, since the coefficients are not significant statistically.

When referring to economic construct and its relationship with the support of the Games, statistically significant standardized coefficients were produced in both groups ($p < 0.05$), 'place of residence' variable. Comparing the groups, the effect of the economic dimension on support to the games was 25% higher considering Brazilian residents who live in Rio de Janeiro (0.635 vs 0.0508), thus confirming H3. Moreover, considering the socio-

cultural aspect for support of the Games, not all coefficients were statistically significant: (females in Rio did not show significance). This revealed that the effect on supporting the Olympic Games was higher and significant for people who live in Rio de Janeiro state, a totally opposite moderation of economic variable.

Discussion and conclusions

This study aimed to examine the residents' support of 2016 Olympic Games in Rio de Janeiro, Brazil, investigating the relationship between the perceived socio-cultural, economic and environmental impacts and the support for hosting the Olympic Games within residents (hosts and non-hosts). It is necessary to understand residents' concerns about the event in order to maximize the positive impacts, minimize the negative and build strong community support (Lee et. al, 2012). Their support is critical not only for the success of the mega event (Konstantaki and Wickens, 2010), but for the accomplishment of future tourism and events (Pappas, 2014). Without it, the event hosting process can present challenges such as anger and civil unrest (Karadakis and Kaplanidou, 2012). Further specific theoretical and managerial contributions from this study has been outlined below:

Theoretical implications
As hypothesized in H1a, the socio-cultural dimension had a positive and significant effect on support for hosting the Rio de Janeiro Olympic Games, corroborating with Ritchie, Shipway and Cleeve (2009), Kim, Gursoy and Lee (2006), Liu (2016) and Waitt (2003). This could be due to the publicity and excitement generated by the national media, government agencies, and the mega event committee local residents are likely to believe that expected benefits of hosting the mega event will surpass the expected cost, meaning that they will probably support the hosting of a mega event according to the social exchange theory. In this case, the social cultural dimension also showed more positive perceptions of Brazilian residents, probably related to civic pride, community image, quality of civilization and sports legacy. This result was similar to those obtained by Prayag et. al (2013), that evaluated the London Olympic Games.

In contrast, the environmental dimension did not have a significant effect on the support for hosting Games, rejecting H1b. This corroborates with the findings of the study by Prayag et. al (2013), that outlined the absence of a significant relationship between perceived positive/negative environmental impacts and overall attitudes. Despite mitigating negative impacts amongst environmental dimensions, that has become an important priority for hosting mega events (Collins, Jones and Munday, 2009), Brazilian residents do not seem to perceive these dimensions positively, as compared to the other two.

This is further explained by the fact that environmental impacts of an event are difficult to be promptly accessed and observed by residents (May 1995), and only become more evident in a long term in most cases (May, 1995) after the event (Prayag et. al, 2013). Drawing on social exchange theory, it suggests that Brazilians did not engage in the exchange process because it was hard to compare the possible costs and rewards in the period when the data was collected (prior to the Rio Olympic Games).

Furthermore, the findings also indicated a positive relationship between the economic impacts and the support to the Brazil Olympic Games, confirming H1c. This dimension showed the greatest impact on the residents' support, indicating that H2 is true for this sample.

The results show the relationship between economic impacts and support for Olympic Games is not only strong but positive too, agreeing with Kim, Gursoy and Lee (2006). Besides, these implications also corroborate with Deccio and Baloglu (2002); Kim and Petrick (2005), Kim et. al, (2015), Prayag et. al (2013) who also stated that economic factors play the most important role in residents' attitudes.

This can be explained by two reasons. First, economic criteria are widely emphasised by mega event authorities, because social and cultural impacts are seen to be "external" to economic evaluations and also less tangible and more difficult to measure (Kim and Petrick, 2005).). For instance, negative social impacts of congestion and disruption of lifestyle are difficult to quantify (Custódio, Azevedo and Perna, 2018). Second, social, cultural and environmental effects are more subjective and unclear in the human mind and human beings tend to be relatively neutral, which translates into less variability and weak relationships with the overall attitudes (Qi et. al, 2016). Considering the social exchange theory principle Brazilian residents probably saw the Olympics 2016 as an opportunity for country's economic development, since the economic impacts led them to see more benefits than costs in economic terms, culminating in the positive support for Rio de Janeiro Games. In this context, benefits derived from construction and infrastructure, including improvement of roads, transport system, airports, the building of convention centers and hotels, employment creation, improved public spaces, increase business opportunities, urban development were specifically experienced in Rio de Janeiro.

In context to this, considering the overall purpose of the paper to evaluate attitudes from wider resident groups residing in host and non-host cities, hypothesis H3 was supported.

The study also reported the way that host and non-host residents perceive socio-cultural, economic and environmental impacts is different. Specifically, comparing the groups, the effect of the economic dimension on the support to the games was 25% higher in Brazilian residents who live in Rio de Janeiro (host city). This suggests that benefits derived from construction and infrastructure, including improvement of roads, transport system, airports, the building of convention centers and hotels, employment creation, improved public spaces, increase business opportunities, urban development were specifically experienced in Rio de Janeiro (host city). This finding diverges from Chen and Tian (2015) and Karadakis and Kaplanidou (2012), who found a higher support from non-host residents.

However, both studies (Chen and Tian, 2015; Karadakis and Kaplanidou, 2012) considered a post event evaluation, which can incite differences in the results, since this research had been conducted before the actual 2016 Rio Olympic Games took place. In fact, a host perception of economic impacts before the Games (which was investigated in

this study) at least in short term seems beneficial to the host living in Rio, considering the gains in infrastructure, employment, business, which leads to social exchange theory and rewards surpassing costs. Of course, after the event, some problems can emerge increasing the costs and impairing the exchange situation, such as the existence of white elephants, displacement of residents, a decrease in security in the city due to the end of the event, and, perhaps most significantly, rising levels of taxes for the host community in some cases. Afterwards, there may be a possibility of residents' changing their perceptions for the mega-event.

Besides, the tourism development and place marketing literature show that contradictory evidence exists in relation to the influence of distance/proximity to major tourist development on perceptions of impacts (Prayag et al. 2013).

Managerial Implications

This paper pursued to examine the residents' attitudes of 2016 Olympic Games in Rio de Janeiro, Brazil, investigating the relationship between the perceived socio-cultural, economic and environmental impacts and the support for hosting the Olympic Games within residents. The literature pointed to a direct and positive relationship between these three dimensions and the support for hosting a mega event. The results show that economic factors play the most important role on residents' attitudes with sociocultural aspects showing positive but slightly weaker relationship in comparison. This could be since the social, cultural and environmental impacts are less tangible and hence difficult to measure than economic evaluations.

Having said that, it is important to note that all of these dimensions play a critical role in establishing residents' support to mega-events such as the Olympic Games. Hence, the findings from this study should help organizers from both the private and public sector including relevant government authorities to understand the critical importance of resident groups' engagement in planning and delivery of mega-events. It should also help form better interaction strategies with residents in order to establish ambassadorship in support of the organisation of future mega-events such as the Olympic Games reflecting pride and participation in their attitudes. For instance, they can engage the community more in decision making before the Games, particularly considering economic and socio-cultural impacts, in order to address residents' issues and concerns and to execute a successful event.

Finally, the economic aspect of hosting this event should be better promoted to nonresidents, who showed less support. In fact, government authorities, stakeholders and event organisers can adopt better inclusive communications strategies focused on positive economic impacts for non-hosts and policies and actions also seeking for the economic development of other cities, such as other states in Brazil in this case, perhaps closer to Rio de Janeiro. On the other hand, socio-cultural aspects such as pride, community image, fostering political consolidation should be emphasised to all residents.

Limitations and future research

A potential issue inherent in this study is linked with a restrictive sample from just two cities of the host country for the Olympic Games that may limit results to a certain extent. Therefore, a sampling frame comprising of participants from more cities/regions could provide extensive understanding into residents' attitudes reflecting broader country perspective for mega-events.

Furthermore, as the data for this research was collected close to the event (before the games), which may compromise the view of any negative economic aspects, since these are often perceived in the long term (such as country image effects) and can change the residents' perception as stated by Kim, Gursoy and Lee (2006) and Kim and Petrick (2005). The economic benefits of hosting a mega event can be only temporary, for example, the boost of the tourism demand. In this scenario, Rio is one of the leading examples of social unrest and resistance to the staging of an Olympic Games, but the negative consequences of this event probably were stronger after it happened. Hence, a longitudinal study covering before, during and post-event phases may provide more insights since it gives better opportunity in assessing attitudinal dimensions. Finally, qualitative studies could also be considered in order to better understand the negative evaluations and overall resistance towards hosting similar sport mega event(s) in future.

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Appendix 1 – Questionnaire

	Sentences in the questionnaire
Socio-cultural dimension	The Olympic Games will promote Brazil as an sporting-hub
	The Olympic Games will provide an excellent opportunity for Brazilians to showcase their multi-cultural society
	The Olympic Games will bring in fresh dynamism of societal cohesion and bonding
	The Olympic Games will enhance Brazil's image as an entertaining and welcoming country
	The Olympic Games provides its residents a unique sense of pride
	The Olympic Games will tie Brazilians together even better
	The Olympic Games provides an opportunity for Brazil to demonstrate its capability to host such mega-events successfully
Environmental dimension	The Olympic Games will raise environmental awareness
	The Olympic Games will enforce specific policies to protect environment
	The Olympic Games will be able to manage pollution as result of increased numbers of visitors
	The Olympic Games will bring in sustainable ways of dealing with environmental conservation
	The Olympic Games will encourage recycling
	The Olympic Games will provide innovative ways of managing pollution
	The Olympic Games will support conservation and environmental protection initiatives
Economic dimension	The Olympic Games will enhance Brazil's image globally
	The Olympic Games will provide extensive media coverage of Brazil as a sporting nation
	The Olympic Games will promote Brazil as a safe destination
	The Olympic Games has provided long-lasting infrastructure development and regeneration for future
	The Olympic Games has brought in opportunities for employment for the residents
	The Olympic Games will increase business opportunities in Brazil
	The Olympic Games has led to increase of taxes and prices for local residents and businesses, respectively
	The huge investment required in order to host the Olympic Games is justified in terms of sustainable economic benefits that may be generated for the residents
	The legacy of Olympic Games could assist the initiatives in resolving urban violence and insecurity
Support for the Olympic Games	Generally, there is a good feeling amongst residents about hosting the Olympic Games
	As a resident I passionately support hosting the Olympic Games
	Brazil should continue bidding for hosting other mega sporting events

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Figures - Investigating residents' attitudes of 2016 Olympic Games: examining socio-cultural, economic and environmental dimensions

Figure 1 – Structural Model
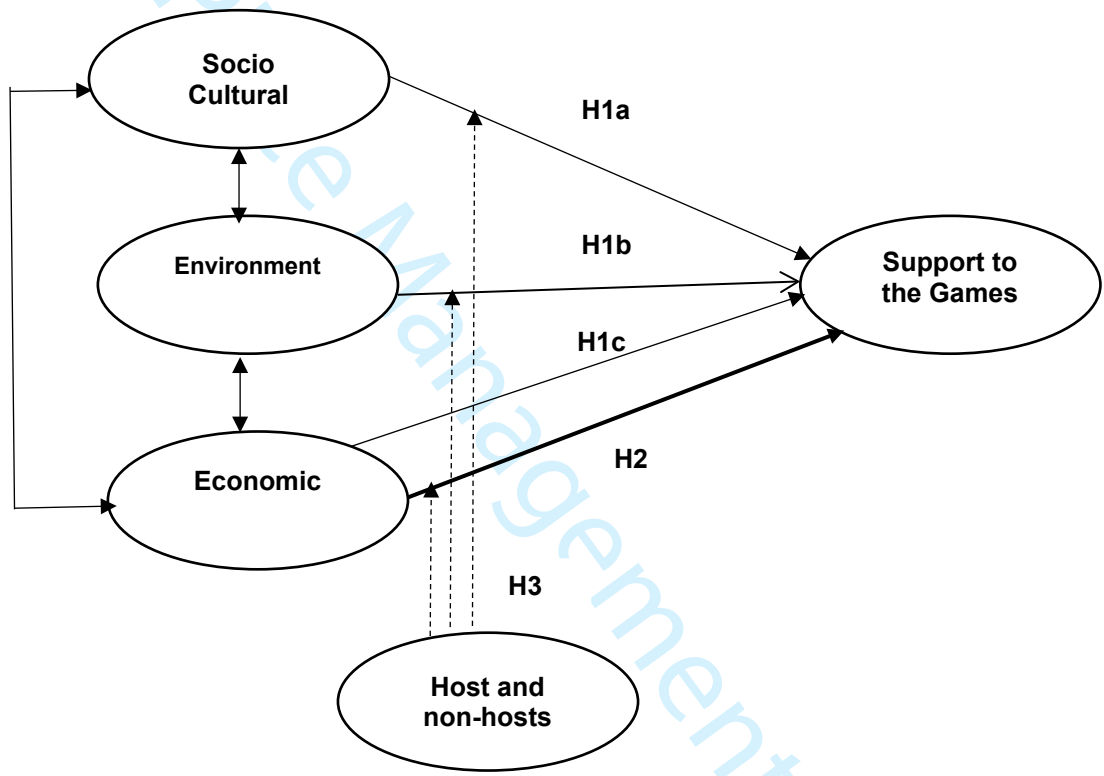
Tables - Investigating residents' attitudes of 2016 Olympic Games: examining socio-cultural, economic and environmental dimensions

Table 1 – Demographic profile considering different places of residence

	In Rio (host residents)		Out Rio (non-host residents)	
	Frequency	**%**	**Frequency**	**%**
Gender				
Male	85	44.9	141	47
Female	104	55.1	159	53
Age				
Younger than 20	28	14.8	78	26
20-29 years old	83	43.9	169	56.3
30-39 years old	40	21.2	42	14
40 years old and older	38	20.1	11	3.7

Table 2 – Result of the Exploratory Factor Analysis

Dimension and Cronbach's Alpha	Sentences	1	2	3	4
Socio-cultural	The Olympic Games will promote Brazil as an sporting-hub	0.525			
0.788	The Olympic Games will bring in fresh dynamism of societal cohesion and bonding	0.733			
	The Olympic Games provides its residents a unique sense of pride	0.700			
	The Olympic Games will tie Brazilians together even better	0.721			
Environmental	The Olympic Games will raise environmental awareness		0.728		
0.919	The Olympic Games will support conservation and environmental protection initiatives		0.809		
	The Olympic Games will be able to manage pollution as result of increased numbers of visitors		0.699		
	The Olympic Games will bring in sustainable ways of dealing with environmental conservation		0,823		
	The Olympic Games will encourage recycling		0.791		
	The Olympic Games will enforce specific policies to protect environment		0.865		
	The Olympic Games will force the creation of specific policies for environmental protection		0.780		
Economic	The Olympic Games provides an opportunity for Brazil to demonstrate its capability to host such mega-events successfully			0.691	
0.885	The Olympic Games will promote Brazil's image globally			0.741	
	The Olympic Games will provide extensive media coverage of Brazil as a sporting nation			0.627	
	The Olympic Games will promote Brazil as a safe destination			0.749	

		0.665
The Olympic Games has provided long-lasting infrastructure development and regeneration for future		0.665
The Olympic Games has brought in opportunities for employment for the residents		0.741
The Olympic Games will increase business opportunities in Brazil		0.725
The huge investment required in order to host the Olympic Games is justified in terms of sustainable economic benefits that may be generated for the residents		0.563

Table 3 – Convergent Validity

Dimension	Composite Reliability	Extracted Average Variance	Root of the Extracted Average Variance
Socio cultural	0.785	0.552	0.743
Environment	0.922	0.628	0.793
Economic	0.861	0.556	0.745
Support to the Games	0.799	0.582	0.763

Table 4 – Correlation Matrix Between the Constructs and Discriminant Validity

Dimension	Socio Cultural	Environment	Economic	Support to the Games
Socio cultural	**0.743**			
Environment	0.591*	**0.793**		
Economic	0.731*	0.471*	**0.745**	
Support to the Games	0.654*	0.433*	0.737*	**0.763**

* Significant at 5%

Table 5 – Coefficients of the Structural Model

Structural Relationships	Standardized Coefficients	P value
Socio cultural - Support to the Games	0.226*	0.003
Environment - Support to the Games	0.039	0.429
Economic - Support to the Games	0.553*	0.000

* Significant at 5%

Table 6 - Test of Invariance

Model	χ^2	Df	$\Delta \chi^2$ (df)	P Value
Unconstrained Model	489.93	129	-	-
Constrained Model – Place of Residence	651.85	261	161.92 (132)	0.039

Table 7 – Competing models

Structural Relationships	Standardized Coefficients	
	In Rio	Out Rio
Socio cultural - Support to the Games	0.124	0.308*
Environment - Support to the Games	-0.011	0.049
Economic - Support to the Games	0.635*	0.508*

*Significant at 5%