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'Long term impacts of a mega event: Case study Weymouth (London 2012)'

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Abstract

This paper investigates the long-term impacts of a mega event, using the case of the London 2012 Olympics' impacts on Weymouth and Portland (as a joint destination in Southern England). The study used the 2 sets of data, collected in 2003 and 2017, containing the residents' perceptions before and after the event. The findings revealed important changes in terms of residents' perceptions towards the impacts of the London 2012 Olympics over the 14 years, such as an improvement in perceived positive impacts, a higher level of tourism involvement, the better perception of destination attributes, the relationship between destination nature attributes and the perceived negative impacts, and the more significant role of the perceived negative impacts. Different implications for the UK tourism industry, in particular British sea-side resorts, and a wider context are also discussed.

Abstracta

Este artículo investiga los impactos a largo plazo de un megaevento, utilizando el caso de los impactos de los Juegos Olímpicos de Londres 2012 en Weymouth y Portland (como destino conjunto en el sur de Inglaterra). El estudio utilizó los 2 conjuntos de datos, recopilados en 2003 y 2017, que contenían las percepciones de los residentes antes y después del evento. Los hallazgos revelaron cambios importantes en cuanto a las percepciones de los residentes sobre los impactos de los Juegos Olímpicos de Londres 2012 durante los 14 años, como una mejora en los impactos positivos percibidos, un mayor nivel de participación en el turismo, una mejor percepción de los atributos del destino, la relación entre atributos de la naturaleza del destino y los impactos negativos percibidos, y el papel más significativo de los impactos negativos percibidos. También se analizan diferentes implicaciones para la industria del turismo del Reino Unido, en particular los balnearios británicos, y un contexto más amplio.

KEYWORDS

community perceived impacts, longitudinal studies, mega events, Olympics

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1 | INTRODUCTION

This paper sets out to discover over time, residents' views of the long-term impacts, of the role of a mega-event within resort regeneration policies. The uniqueness of the study lies in the data being collected in two data sets, 14 years apart, whereas most resident studies are undertaken over much shorter time frames. For the original research published in 2006, the discussion focused on the life cycle theories of Christaller (1963), Butler (1980) and Russell and Faulkner (2004), and the application of these theories to events beyond their economic impacts, with reference to how events could impact plans for the area. This paper, with the combined data focuses in more detail on the measurement of the perceptions of the long-term impacts and what transpired, thus moving slightly away from the original life cycle approach. However, it does comment on where events can 'fit' into these lifecycle theories, particularly in regeneration studies and important considerations for other destinations considering regeneration policies. The case study stays as Weymouth & Portland, Dorset, the venue for the sailing competitions of the London 2012 Olympics. The first data set was collected in 2003, the second data set, which was collected in 2017, looks at the actual long-term impacts from the residents' perspectives post the event. This paper aims to compare the residents' perceptions, primarily on the impacts of hosting the event, between the two data sets, that is, pre-, and post-event. The factors leading to the perceived impacts as well as their outcomes are also examined.

The tension is the confounding of the "time-difference effect" and the "between-groups effect", present in this study, and any similar pseudo-longitudinal designs. This confounding cannot be disentangled in this design as only a truly longitudinal factorial design could separate the two confounded effects. However, the additional insight provided allows the opportunity to infer that the instrument was used in the same way by each group, which may mitigate some of the confounding's in the pseudo-longitudinal design. Therefore, this study is using the same case study but at two distinct points in time. It was important to investigate any correlation between the two data sets and how and if their views have changed over time, endeavoring to explain the changes. These findings could have significant bearing on future planning where events are being used as the catalyst for regeneration. As reported previously and still relevant today, towns, and cities use events for a multitude of policy objectives, including tourism generation, civic pride, stimulating economies, and regenerating areas in need of social improvements (Bowdin et al., 2006). What is needed is more evidence of the long-term (more than 10 years) impact of these events, something that has been lacking in the past.

2 | LITERATURE REVIEW

Events have increasingly become tourist attractions and contribute to regeneration as seen with Manchester and more recently parts of East London (Smith, 2014). The 2012 Olympics in London have regenerated areas of East London into a multi-use park drawing in sports,

culture, media, start-ups, and new residential areas unlike trends from former host cities and areas of dereliction (Hill, 2015). Weymouth wanted the hosting of the Olympic sport to kick start a strategy for its future tourism offer by adopting a concerted approach to attract certain segments of the market and invest sensibly in these areas, rather than trying to spread itself too thinly across all market sectors (Sadd, 2004). From the original research reported from the first data set (Sadd & Jackson, 2006), it was shown how the residents were keen for the 'season' to be all year round and hoped that a portfolio of events could support this. Furthermore, they highlighted concerns in relation to some of the anticipated negative aspects of the hosting, including pollution and damage to the natural environment.

2.1 | Resort regeneration

For Weymouth and Portland, the host borough for the London 2012 sailing competitions, it was the focus of resort regeneration that was highlighted when the bid was announced and then won, as the local council recognized how events can play a vital role within the regeneration policies adopted. The site of the events was the Weymouth and Portland National Sailing Academy (WPNSA).

Until the 1970's English seaside resorts were popular destinations as people had both more leisure time and greater disposable incomes, yet resorts began to decline with the onset of the package holiday (Moore, 2001). Furthermore, Kennell (2011) added to the discussion as to why the British seaside has been in decline since the 1970's by highlighting the blame partly on 'outdated infrastructure and redundant urban spaces' (p. 364). Initiatives were needed to try to prevent this decline, especially along the coastline of the UK (Agarwal et al., 2012; 2018). A resort's place distinctiveness would become crucial in any plans for restructuring strategies to offset the possible decline and in the case of Weymouth and Portland, the natural harbor combined with the man-made facilities to complement the water sport opportunities featured heavily in its future long-term plans. Smith (2005b; 2016) writes about how 'sport reimagining' arises when a municipal government uses sport to modify a place image as was the intention of Weymouth and Portland Borough Council.

Furthermore, the council was keen to capitalize on the distinctiveness of not only the harbor, but also the adjacent setting of the World Heritage Coastline. A £6 million grant was awarded to the area to develop the sailing facilities for the Olympics and beyond, for the local community. The intention being that the center would provide high performance training both ashore and afloat including disabled access and inclusion, in addition to supporting the local community and economy by encouraging supporting facilities and businesses (estimated impact of academy resulting in a £35.9 million increase in demand on local firms and 150 full-time equivalent jobs) and be used by locals alike (Tweed, 2004).

The original research undertaken in 2004, highlighted that the hosting of the sailing events and proposed infrastructure developments would be the catalyst for regeneration. In the interim period between the two sets of data collection, Sadd (2008) commented that

Weymouth needed to decide on a strategy for its future as the hosting of the Games was 'a once in a lifetime opportunity' to adopt a strategic approach to its future tourism portfolio and to ascertain which market segments it wished to focus on for investment in infrastructure and support for these areas. Getz and Andersson (2016) suggests that events should be used when resorts are in a permanent state of maturity and that product introduction, growth, maturity, and decline occur simultaneously, yet there is always a new initiative/trigger to try and keep the resort popular to new and returning visitors. Hence, here it would be to capitalize on the natural harbor offer and adjacent supporting infrastructure. The suggestion was made that with so much investment being made into water sports and associated projects, then Weymouth could align itself with this market share and use the 2012 Games and the build-up as the catalyst to focus on this segmentation including updating infrastructure and repurposing redundant space (former naval base). This would have aligned nicely with both Butler's life cycle model and Russell and Faulkner's, model constantly evolving as well as Smith's (2005a) resort reimagining. Agarwal and Blunt (2006) however, suggests that resort decline is a constant threat and not expected just at the end of the life cycle. Benedict and Houghton (2009) suggest that there is limited knowledge of what works in the case of resort regeneration so this paper will help to highlight the roles of events in the long-term in order to support resort regeneration, especially where they (Benedict & Houghton, 2009) suggest that the diversification of the economic base is a suitable strategy for making the resort sustainable into the future. This could assist other resorts in considering regeneration plans.

In a report from Bournemouth University in 2006 it highlighted that the £6 m grant from Sport England; English Institute of Sport; Southwest England Regional Development Agency, boosted jobs and incomes in the town and surrounding areas but still a lot of the investment has stayed in some localized areas and not expanded to the rest of Weymouth and Portland. A previous report by Gray (2003) on behalf of Dorset County Council stated that low productivity, low skills, and weak economic activity, unless addressed by some regeneration plans, would lead to an economic downturn for the towns and surrounding areas. The hosting of the Olympic events could be the catalyst to regeneration.

2.2 | Mega event impacts at a local and regional level

Gursoy & Kendall, (2006) state '...for a mega event to be successful, the understanding and participation of all stakeholders in the process is crucial,' but they focus on the main center of events and less so on local and regional impacts. Similarly, most previous studies center on the economic benefits of mega event legacy in a holistic approach, but more now view this as less important social legacy. However, the intangible nature of these impacts makes them less easy to quantify (Kim & Petrick, 2005). Other impacts include image awareness and

resident benefits as viewed through Social Exchange Theory (SET) with the perceptions of both positive and negative impacts, community concerns, community attachments and environmental values. Stewart and Rayner (2016) more recently suggest that the mega event bidding presents a one-sided view of positive effects, without consideration of the downside of hosting and that this needs to be more transparent at the time of bidding for all venues. There have been a few mega event bids blocked by residents when more evidence has been presented of negative impacts for example, Oslo 2022, Stockholm 2022, Munich 2022, St Moritz 2022, Krakow 2022, Boston 2024, Rome 2024, Hamburg 2024, Budapest 2024 and Calgary 2026.

Müller (2015) writes about the mega event syndrome 'a group of symptoms that occur together and afflict mega-event planning, including overpromising benefits, underestimating costs, rewriting urban planning priorities to fit the event' suggesting the perceived impacts should not be linked to infrastructure projects, and that independent assessments of the costs should be obtained and thereby limit the pressure on public spend. An important aspect of the research here is adding to the literature with its longitudinal results evidencing the community views.

2.3 | Infrastructure legacies

Getz (2018) writes that whilst demands on events change, those organizations prepared to learn and adapt through strategic planning and research are the ones more likely to survive in the events market, especially those who forward plan with respect to their infrastructure. An example of this forward planning is the case of the Manchester Commonwealth Games in 2002 and the 'City of Manchester Stadium', which after the games was sold to Manchester City Football Club as their new stadium (Shone & Parry, 2004). However, in Sydney, the stadia built for the 2000 Olympics have been underused and losing money as there was little forward planning as to their outcome post the games. Many of the local sporting clubs already had their stadiums, yet the games organizers decided to build new facilities without ensuring their continued use and profitability afterward (Searle, 2002).

O'Reilly (1986), Lindberg and Johnson (1997) and Getz (2018), believe that the less an event is tied into purely profit making commercially and therefore short-term, the less likely it will succumb to old age or competition. Therefore, post the main event the associated infrastructure needs a portfolio of further events to ensure sustainability and viability. From a community's point of view, it is not the individual life cycles that are of importance, rather the overall portfolio that is of greater importance (Getz, 2018) for the long-term viability and sustainability of the locale.

Leonard (2016) suggests that following on from Agarwal (2002) who argued the importance of statutory agencies in directing seaside resort changes, such as planning permissions for certain demographics, the changes in the physical environment are key to the future changes and evolution of the resort.

2.4 | Community impacts

Shone and Parry (2004, p. 66) state that the benefits of hosting mega-events include opportunities 'to create better social interaction, help to develop community cohesion, increase cultural and social understanding and improve the communities' identity and confidence in itself' without stipulating a time frame for this to happen. However, Li and McCabe (2013) further argue that there are few studies and examples of where this has been measured over the long-term and suggest ways to undertake this to show the true long-term benefits. Most recently Shen, Yang and Geng (2022, p. 2) state there is a 'research gap necessitates expanding the literature ... to understand why residents support tourism in their communities and how the influencing factors affect each other'. Hence supporting the use of a longitudinal approach to see the long-term relationship. It is acknowledged that few studies measure the social impacts of tourism, and the most widely used framework for describing the effects of tourists on a host society being 'Doxey's Index of Irritation' developed in 1976.

Residents in tourism destinations are key to the quality delivery of the experiences of tourists whilst also maintaining sustainable tourism development (Gursoy et al., 2010). They investigated resident attitudes and distinguished between extrinsic (e.g., stage of development) and intrinsic (e.g., residents' length of residence, involvement in tourism) elements of tourism development similar to the investigations and findings here. In addition, Draper, Woosnam & Norman (2010), look at the tourism use history (TUH) to try to understand how individuals perceive tourism within their own community. However, the 'us versus them' mentality as first suggested by Wall and Mathieson (2006) is still perpetuated with the more recent work of Tasci and Severt (2016) analyzing the different characteristics of host and guest as viewed through the examination of impacts.

Historically, beyond Doxey's Irridex, other theories have developed to explain resident's attitudes towards tourism, its development, and impacts. McGehee and Andereck (2004) examined variations of demographics combined with the residents' perceptions of tourism and its benefits including those who depend on the tourism trade to examine their perceptions of the personal benefits and attitudes toward tourism. Personal benefit and economic dependence impacted positive and negative perceptions, and that as a destination becomes increasingly dependent on tourism, the negative impacts are more recognizable which may detract from positive impacts. Similar to this study, Latková and Vogt (2012) in their study report that the perception of personally benefiting from tourism was positively related to positive impacts and negatively related to negative impacts thus impacting the support or otherwise for more developments.

Further studies that represent social representations theory (Fredline & Faulkner, 2000; Moscardo, 2011), and the social exchange theory has been utilized most in an effort to explain residents' attitudes at different destinations (Nunkoo and So, 2016). They claimed that the social exchange theory is likely one of the most popular theories used to explain residents' attitudes toward tourism and/or tourism development and that the level of support correlates with their perceptions. This theory depends on perceptions of whether positive externalities are greater than negative externalities and whether the

exchange of resources between tourists and residents are deemed reasonable, thus supporting this relationship if these exchanges remain.

Latterly, Ward and Berno (2011), Woosnam (2011), and Monterrubio (2016) have all studied the relationships from different approaches and in particular Ward and Berno (2011), the host-tourist interactions, yet mainly the effect on the tourist rather than the residents thus identifying the research gap suggested by Shen et al. (2022).

Lundberg (2015, p. 287) argues that whilst destinations may 'have similar geographical settings, attractions, target markets and seasons, one of their differentiating variables is often what stage of tourism development they are in'. Therefore, whilst arguing that locals are a crucial part of the tourist experience, they are heterogeneous and so how they perceive the impacts will vary as are the heterogeneous destinations. Subsequently, as this paper offers opportunities for other coastal resorts/destinations to consider event hosting as an opportunity for resort regeneration, each is unique and so must consider its own needs and stages with the TALC (Butler, 1980).

2.5 | Community perception

Most studies discussing the impacts of tourism and event tourism focus on the 'after' element of what happened. There is scant literature around the perceptions and 'pre' considerations. Furthermore, most of the authors look at the tangible impacts and as Shen et al. (2022) argue, there is a need for more research as to why residents support tourism in their communities. Butler (1975) stated that 'unless the often unforeseen and thus unplanned effects can be controlled, it is at least predicted that opposition will increase' in relation to discussions regarding objections to tourism planning. Ap (1992) mentioned perceptions in relation to residents' perceptions of tourism impacts and described them as a form of social exchange, with either negative or positive impacts and he argued how important perceptions were in relation to planning and policy consideration. Consequently, for any outcomes, it is important to ensure the best balance of the benefits and costs for the residents and the tourism 'actors'.

More recent studies (Nunkoo and Ramkissoon, 2012; Vargas-Sánchez et al., 2009) suggest there are three main elements in tourism development involving 'exchange' with the residents and classify them as economic, social cultural and environmental, akin to the triple bottom line approach (Andersson & Lundberg, 2013). They further suggest three approaches to measuring these perceived impacts these being either a cost-benefit approach; domain related cost-benefit or non-forced approach. However, criticism of this classification arises from of the residents' perception of these in their own way as negative or positive, as so many studies pre-classify the impacts and furthermore these classifications avoid the impact on community life. The 'non forced' approach as seen in the research undertaken by Deccio and Baloglu (2002), allows residents to rate the exchanges and decide on their own directionality through naming the exchanges opportunities or concerns.

In addition, more recently Rua (2019) argues that it is important to not just 'deal with' tourism issues and that it is far more vital to identify in advance the issue and prevent them rather than try to

mitigate them as suggested previously, similar in approach to Shen et al. (2022). It is important these days to reflect on the emotional elements and how tourism and event tourism affects society as opposed to the hard tangible impacts, as argued previously. This contradicts Gursoy and Rutherford who in 2004 suggested that to support the social exchange theory arguments there must be an exchange of resources too yet, Boley et al. (2014) suggested that it is far more important to consider what the residents feel and think and not to focus on the more rational cognitive elements and ignore emotions. This supports the earlier thoughts of Andereck and Nyanpane (2011) who propose that resident perceptions are relevant to the overall well-being of the community and needs to be considered in the planning process.

2.6 | Pseudo longitudinal study

Several studies in recent years (Getz, 1994; Lee & Back, 2003; Catlin & Jones, 2010; Jones et al., 2017) all mention longitudinal study in their papers, however this paper questions whether they are pseudo longitudinal as the subjects within the studies change over time and how this could impact (or not) the validity of the study. Therefore, the issue to discuss is the confounding of the time difference effect and the between groups effect. There are examples from literature with limitations using the same questions similarly on two occasions although the respondents differ. Therefore, are the changes noted in the papers due to the changed attitudes or perceptions over time or more because the people have changed, or social circumstances have changed? For instance, Getz previously in 1994, whilst studying residents' attitudes to tourism in the Spey Valley in Scotland, conducted surveys 14 years apart, (as in this research) and concluded that negative attitudes had increased, and justified this change by an economic downturn. However, as the people interviewed were not the same, the demographic change could explain the difference, or even overall economic changes that occurred over time. This perhaps is to be expected with a 14-year time difference, rather than actual attitudes changing due to the tourism offer as in this study.

The purpose of a longitudinal study is of immense importance to the measurement of tourism and/or event impacts (Pearce & Butler, 1999) with the time lag useful to measure changes because of the developments undertaken. These studies can make contributions to theory according to Getz (2018) as they can help to identify causal mechanisms. However, The Centre for Longitudinal Studies in the UK classify such studies as monitoring or measuring the same people over prolonged periods of time (<http://www.cls.ioe.ac.uk>). Shadish et al. (2002) explain longitudinal research as research that involves repeated observations of the same variables over a period. However, for the purposes of this study and other impact studies, it may not be possible to repeat with the exact same participants and therefore acknowledge that the research is still impactful is important in this paper and its contribution to offer to other destinations considering an enhanced event portfolio.

Lee and Back (2003) again looking at residents' perceptions but this time in the context of casino developments, managed to interview the same people and gained over 400 paired sets in their longitudinal

study. Catlin and Jones (2010) undertook some studies 10 years apart but again the respondents were not the same people, so it is questionable as to veracity of being truly longitudinal. Jones et al. (2017) collected data over 6 climbing seasons for their paper on Mount Fuji climbers. They note that they are not the same people interviewed each season, so report their findings as such.

Consequently, this study does not claim to be truly longitudinal, nor can it disentangle the confounding effects, rather it offers an analysis which hopes to allow the authors to comment on the extent to which the data might sustain a longitudinal interpretation. However, by asking identical questions over a 14-year time lag, the results are still of significance as there is a lack of research in relation to the study of long-term perceived impacts from the hosting of a mega event on host communities and makes a valuable contribution to the academic study as well as to event planners.

3 | METHODOLOGY

This research was carried out in Weymouth and Portland, situated on the south coast of England, 160 miles from central London. Weymouth and Portland are jointly a medium sized resort with a population of approximately 65,000 (Dorset Council, 2021). It has a sheltered harbor containing reputedly some of the best sailing waters in the world. The resort traditionally has been a family destination attracting a strong domestic tourist market base but has suffered in the last 40 years due to the increase in overseas travel (Agarwal, 2002; Agarwal & Shaw, 2007). Portland is the former home of the Royal Navy Base, HMS Osprey, and it is upon this land that the Southwest Regional Development Agency (SWRDA) have developed the Weymouth and Portland National Sailing Academy (WPNSA). This was the location where the sailing and water sports events of the London 2012 Summer Olympics were held.

A questionnaire was developed to evaluate the residents' perceptions on the impacts of hosting events within the joint boroughs of Weymouth and Portland. The questionnaire was designed to collect the community's perceptions towards the events, including the potential positive and negative impacts, the perceived destination attributes, the involvement in tourism, the perceived employment opportunities, the engagement in tourism development strategies, and the overall positivity towards tourism. Demographic characteristic information was also included. Two surveys were conducted in pre- and post-events being in 2003 and 2017, with the same questionnaire although the tenses in some of the questions were changed.

The first data collection in 2003 was carried out in Weymouth and Portland as soon as the announcement was made of the UK bid for the 2012 Olympic Games. It was conducted with the assistance of the Borough Council and Local Chamber of Commerce who distributed the questionnaire to the members of its citizen's panel, a membership of 1000 people across the two boroughs. A 447 questionnaires were returned, and 426 were usable as 21 cases were removed due to the missing values of more than 20%. The second data set was collected in early 2017. The questionnaires were sent by door-to-door leaflet drop to the same postcodes as identified

TABLE 1 Samples' profile

	2003		2017		Pearson Chi-square (<i>p</i> -value)
	Frequency	Percentage	Frequency	Percentage	
Gender					0.030
Male	229	53.8	54	42.9	
Female	193	45.3	71	56.3	
Missing	4	0.9	1	0.8	
Age range					0.411
18–24	4	0.9	3	2.4	
25–34	13	3.1	6	4.8	
35–44	40	9.4	15	11.9	
45–54	71	16.7	23	18.3	
55+	295	69.2	78	61.9	
Missing	3	0.7	1	0.8	
Occupation					0.002
Professional/ manager	101	23.7	39	31.0	
Skilled/non-manual	38	8.9	15	11.9	
Skilled/manual	18	4.2	7	5.6	
Semi/unskilled	16	3.8	5	4.0	
Retired	238	55.9	54	42.9	
Unable to work	7	1.6	1	0.8	
Unemployed	0	0.0	4	3.2	
Missing	8	1.9	1	0.8	
Length of residency					0.007
Under 1 year	1	0.2	4	3.2	
1–5 years	23	5.4	8	6.3	
5–15 years	82	19.2	30	23.8	
Over 15 years	318	74.6	81	64.3	
Missing	2	0.5	3	2.4	
Sail					0.946
Yes	50	11.7	15	11.9	
No	325	76.3	94	74.6	
Would like to learn	50	11.7	16	12.7	
Missing	1	0.2	1	0.8	

in the original citizen's panel from 2002 as the citizen's panel no longer existed. The postcodes used were generic across the borough. A company was employed to distribute the questionnaires. A total sample of 126 responses was obtained in this second survey.

To provide a comparison between the community's views of the 2012 Olympic Games pre- and post-events, *t*-tests and Pearson's Chi-squared tests were carried out to understand the factors that contributed to the perceived impacts, both positive and negative, as well as the outcomes of the perceived impacts. The proposed antecedents of perceived impact included the perceived economic impacts, environmental impacts and socio-cultural impacts across a variety of statements for the respondents to agree or disagree with the statements, this showing their own directionality. Among the antecedents and consequences, except the perceived destination attributes which were measured on a 6-point scale, the rest were dichotomous variables. Therefore, a

structural equation modelling approach with multigroup analysis was used to analyze the relationships between the perceived destination attributes and the perceived impact. The rest of the relationships were established by multiple regressions. These analyses were done with both data sets to establish a comparison of pre- and post-event perceptions. The data were analyzed using SPSS 26 and SmartPLS 3.

4 | RESULTS AND ANALYSIS

4.1 | Samples' profile

As indicated earlier, a total sample of 426 was collected in 2003 and 126 was collected in 2017. Between these samples, except with age range and personal interest in sailing, most other demographic

TABLE 2 The comparisons of residents' perceptions between pre- and post-event – for interval variables

	2003		2017		t-test (p-value)
	Mean	SD	Mean	SD	
Destination attributes					
D1. Festivals & events	4.41	1.153	4.53	1.063	0.302
D2. History & culture	3.87	1.366	4.48	1.101	0.000
D3. Beach & weather	5.41	0.919	5.49	0.936	0.372
D4. Harbor & bay	5.10	0.985	5.10	1.038	0.980
D5. Sailing facilities	4.58	1.232	4.90	1.209	0.010
D6. Surrounding countryside	4.62	1.174	4.86	0.948	0.020
D7. Food and restaurants	3.56	1.317	4.09	1.148	0.000
D8. Nightlife	3.23	1.372	3.86	1.410	0.000
Positive impacts					
P1. Improves standard of living	3.87	1.473	4.19	1.263	0.016
P2. Increases awareness of the town	4.33	1.295	4.64	1.183	0.015
P3. Reduces unemployment	4.71	1.306	4.63	1.185	0.508
P4. Brings in income to the town	5.08	1.190	5.19	0.927	0.362
P5. Improves infrastructure	4.00	1.643	4.46	1.406	0.002
Negative impacts					
N1. Commercialization	3.68	1.433	3.55	1.288	0.367
N2. Lowers moral values	3.54	1.514	3.48	1.263	0.622
N3. Raises crime levels	4.01	1.438	3.93	1.387	0.554
N4. Brings pollution	4.04	1.396	3.96	1.183	0.523
N5. Rich richer/poor poorer	3.60	1.695	3.82	1.253	0.118
N6. Increases prices	4.50	1.479	4.37	1.250	0.359

characteristics, including gender, occupation and length of residency, were significantly different (as shown in Table 1). In 2003 data, there were slightly more male respondents (53.8%) than females (45.3%), while the opposite was observed in 2017 data where the number of female respondents (56.3%) was slightly higher than male (42.9%). This finding reflects the data held by the local council in relation to demographic shifts. In terms of occupation, it is observed that there were more professional/manager respondents and fewer retired ones in 2017 data (31.0% and 42.9%, respectively), in comparison to the 2003 data (23.7% and 55.9%, respectively). The length of residency of the respondents in 2017 data seemed to be shorter with a higher number of 5–15 year residents (23.8% in 2017 compared to 19.2% in 2003) and a lower number of over 15 year residents (64.3% in 2017 compared to 74.6 in 2003). These differences, while possibly imposing limitations for the later comparisons, indeed reflects the change of local population, where more professional people recently moved into local areas (Dorsetcouncil.gov.uk) with the latest data showing a move to higher intermediate skilled as the predominant occupation.

It should also be noted that in terms of age structure, according to the Census 2001 and 2011 (Nomis, 2022) as shown in Appendix B, the 60+ age group was the largest group of the population in Weymouth and Portland District. In line with this, our samples contained the highest percentages of respondents in the age range of 55 and above. However, due to the data collection methods where

the surveys were distributed via post, higher numbers of older age groups participated in our studies. Previous studies have indicated that the older age groups, who were 50+ years old, were more likely to participate in the survey, especially paper surveys (Seil et al., 2021). This response bias is acknowledged as a limitation in the current study, which could influence our findings in terms of resident perceptions.

4.2 | The comparisons between pre- and post-event residents' perceptions

Data concerning residents' perceptions towards tourism impact, destination attributes, involvement in tourism, employment opportunity, support for tourism and events, and engagement in tourism development policies were collected and analyzed. A comparison between 2003 and 2017 data, as presented in Tables 2 and 3, showed various significant differences in terms of positive impact, destination attributes, overall positivity of tourism, family involvement in tourism, support for more tourists and consideration of general views.

Regarding tourism impacts, there were no significant changes in negative impacts. Both pre- and post-event, the negative impacts of tourism were recognized, yet not considered as substantial with most mean values below 4, out of a 6-point scale. The positive impacts

TABLE 3 The comparisons of residents' perceptions between pre- and post-event – for dichotomous variables

	2003		2017		Pearson Chi-square (p-value)
	Frequency	Percentage	Frequency	Percentage	
Involvement in tourism - self					0.138
Yes	30	7	14	11.1	
No	396	93	112	88.9	
Missing	–	–	–	–	
Involvement in tourism – family					0.087
Yes	41	9.6	19	15.1	
No	383	89.9	107	84.9	
Missing	2	0.5	–	–	
Employment opportunity resulted from tourism development					0.317
Yes	25	5.9	11	8.7	
No	389	87.8	113	89.7	
Missing	27	6.3	2	1.6	
Overall positivity of tourism					0.000
Yes	385	90.4	99	78.6	
No	35	8.2	24	19.0	
Missing	6	1.4	3	2.4	
Support for more tourists					0.097
Yes	247	58.0	83	65.9	
No	425	41.8	42	33.3	
Missing	1	0.2	1	0.8	
Support for Government investment in the area					0.199
Yes	398	93.4	122	96.8	
No	26	6.1	4	3.2	
Missing	2	0.5	–	–	
Support for large scale events in the area					0.330
Yes	255	59.9	82	65.1	
No	161	37.8	42	33.3	
Missing	10	2.3	2	1.6	
Engagement in tourism development policies/strategies - you consulted					0.256
Yes	45	10.6	18	14.3	
No	379	89.0	108	85.7	
Missing	2	0.5	–	–	
Engagement in tourism development policies/strategies - local should be consulted					0.109
Yes	404	94.8	120	95.2	
No	21	4.9	2	1.6	
Missing	1	0.2	4	3.2	
Engagement in tourism development policies/strategies - general views considered					0.030
Yes	65	18.3	10.0	7.9	
No	353	82.9	116.0	92.1	
Missing	8	1.9	–	–	

were also acknowledged pre- and post-event with most mean values above 4. More importantly, post-event, the perceived positive impacts were significantly higher, suggesting the positive influence of the event. Despite this, the overall positivity of tourism seemed to

decrease from 90.4% of residents considering tourism as positive for local areas in 2003 to 78.6% in 2017. Thus, it could be concluded that whilst the residents were pleased that the event happened, they feel less positive about the impacts of tourism.

In terms of destination attributes, both data sets indicated sea-related attributes such as beach and weather, harbor and bay, and sailing facilities as the most prominent features of the destination, with mean values ranging from 4.58 to 5.49 (out of a 6-point scale). Notably, most of the attributes were considered more important in the 2017 data, especially with the non-sea-related attributes such as history and culture, food and restaurants, and nightlife. This indicated the wider development of the local hospitality and tourism industry, possibly as a consequence of the hosting of the Games from 2012. This shows the real impacts as opposed to from 2004, potential benefits.

The data showed a rather low level of tourism employment, as well as the perceived employment opportunity in the areas. However, there was a slight growth, with family involvement in tourism significantly increasing from 9.6% in 2003 to 15.1% in 2017, and self-involvement in tourism increased from 7% in 2003 to 11.1% in 2017. This could be explained by the change in demographics already noted as there are fewer retired and unemployed responses in 2017.

The support for tourism and events was rather positive in both pre- and post-event, with the majority of the respondents (58% and above) support for more tourists, more large scale events and Government investment. While the percentages of respondents supporting tourism and events tended to slightly increase, only the support for more tourists was statistically significant at a 90% confidence level ($p = 0.097$).

Finally, the analysis revealed interesting results regarding the engagement in tourism development policies. While the majority of respondents agreed that local residents should be consulted on specific tourism developments (94.8% in 2003 and 95.2% in 2017), only a

few of them (10.6% in 2003 and 14.3% in 2017) had been consulted on major tourism developments. Additionally, it is indicated the general views of the public were not widely considered and there was even a decrease with a higher number of respondents in 2017 data believed that the general views of the public were not considered (92.1% in 2017 compared to 82.9% in 2003, $p = 0.030$). This could be due to the resident's panel no longer being active as these respondents had been chosen to specifically provide feedback to the council.

5 | THE ANTECEDENTS OF PERCEIVED IMPACTS

5.1 | Destination attributes

The dimensions of the destination attributes and perceived impacts were first explored using Principal Component Analysis (PCA). The results, as shown in Appendix A, indicated two dimensions for destination attributes, including Anthropology and Nature, and two dimensions for perceived impacts, including Positive Impacts and Negative Impacts. A structural equation model, indicating the relationships between these four constructs were established and analyzed in SmartPLS 3.

To verify whether the comparison between the two groups, 2003 and 2017, as well as the pooled data, was meaningful, the measurement invariance was first tested, applying the MICOM procedure (Cheah, Thurasamy, Memon, Chuah, & Ting, 2020; Henseler et al., 2016). The results, as shown in Table 4, indicated a partial measurement invariance between the two groups. This suggested that the multigroup analysis is meaningful, yet the pooled data was not.

TABLE 4 Results of invariance measurement testing, applying the MICOM procedure

Constructs	Step 1 Configural invariance (Same algorithms for both groups)	Step 2 Compositional invariance		Partial measurement invariance established	Step 3 Equal mean values and variances				Full measurement invariance established
		c	5% quantile		Equal mean values		Equal variances		
					Differences	Confidence Intervals	Differences	Confidence Intervals	
Anthropology	Yes	0.993	0.987	Yes	-0.469	-0.188-0.190	0.217	-0.289-0.338	No
Nature	Yes	0.999	0.976	Yes	-0.159	-0.195-0.189	-0.186	-0.488-0.545	Yes
Negative impact	Yes	0.988	0.926	Yes	-0.064	-0.192-0.204	0.578	-0.296-0.285	No
Positive impact	Yes	0.998	0.994	Yes	-0.233	-0.197-0.197	0.322	-0.336-0.351	No

TABLE 5 The comparison of the destination attributes – perceived impacts relationships between 2003 and 2017

Relationships	Path (2003)	p-Value (2003)	Path (2017)	p-Value (2017)	Diff (2003–2017)	p-Value (Diff)
Anthropology > Negative impacts	0.252	0.000	0.186	0.138	0.066	0.665
Anthropology > Positive impacts	0.410	0.000	0.492	0.000	-0.082	0.333
Nature > Negative impacts	-0.053	0.440	0.200	0.032	-0.252	0.035
Nature > Positive impacts	0.239	0.000	0.166	0.024	0.073	0.414

Variable	2003			2017		
	B	β	p	B	β	p
(constant)	-0.186		0.002	0.160		0.103
Involvement_self	0.211	0.052	0.377	-0.330	-0.113	0.399
Involvement_family	0.310	0.089	0.119	-0.076	-0.030	0.770
Employment_opportunity	0.096	0.022	0.667	0.330	0.105	0.444
Engagement_self	0.081	0.024	0.638	-0.135	-0.053	0.562
Engagement_publicview	0.509	0.177	0.001	0.420	0.127	0.164
	F(5,375) = 4.175, p = 0.001 R ² = 0.053; R ² adjusted = 0.040			F(5,118) = 0.643, p = 0.667 R ² = 0.027; R ² adjusted = -0.015		

TABLE 6 Regression analysis summary for positive impacts of 2003 data

Variable	2003			2017		
	B	β	p	B	β	p
(constant)	0.090		0.144	0.022		0.811
Involvement_self	-0.410	-0.099	0.091	0.145	0.052	0.699
Involvement_family	0.144	0.041	0.475	-0.167	-0.069	0.502
Employment_opportunity	0.198	0.045	0.381	0.413	-0.546	-1.042
Engagement_self	0.230	0.068	0.190	-0.16	-0.066	0.475
Engagement_publicview	-0.668	-0.229	0.000	-0.09	-0.029	0.754
	F(5,375) = 4.616, p = 0.000 R ² = 0.058; R ² adjusted = 0.046			F(5,118) = 0.353, p = 0.880 R ² = 0.015; R ² adjusted = -0.027		

TABLE 7 Regression analysis summary for negative impacts

The results of the two structural models and the multigroup comparison are shown in Table 5. In the 2003 data, Anthropology was indicated to have a significant relationship with both Negative and Positive impacts, while Nature only significantly influenced Positive impacts. In the 2017 data, Anthropology had a significant relationship with positive impacts, and Nature had significant relationships with both Negative and Positive impacts. The results also revealed a significant difference in the relationship of Nature attributes and Negative impacts between 2003 and 2017 ($\Delta = -0.252$, $p = 0.035$), while other relationships were not significantly different. This could be an important finding as with the changing population over the period of time in this study, the views of the residents are changing as a result of the positive impacts, more through the course of time as the demographics have changed. Perhaps this raises a question of the importance of measuring long-term impacts when the demographics change.

5.2 | Involvement in tourism and perceived employment opportunity

To observe whether the involvement in tourism and perceived employment opportunity were connected to perceived impacts in both 2003 and 2017 data sets, a series of linear regression analyses (using the Enter method) were performed. Significant regression results were found for Positive impacts of 2003 data [F(5,375) = 4.175, $p = 0.001$, $R^2 = 0.053$] and Negative impacts of 2003 data [F(5,375) = 4.616, $p = 0.000$, $R^2 = 0.058$]. The specific

results, as shown in Tables 6 and 7, indicated that for 2003 data, the engagement of public views had a positive influence on Positive impacts ($\beta = 0.177$; $p = 0.001$) and a negative influence on Negative impacts ($\beta = -0.229$; $p = 0.000$). This means that the more the residents believed that the public view was considered for tourism development, the more positive impacts, and the less negative impacts they perceived. However, this perception only explained small portions of the total variation of the Positive and Negative impacts, that is, 5.3% and 5.8%, respectively.

6 | THE CONSEQUENCES OF PERCEIVED IMPACT

The proposed consequences of perceived impacts were the support for more tourists, support for government investment, support for large-scale events, and the overall positivity towards tourism. An interesting finding from a closer study of the local population and council statistics shows that less than 15% of the local population are employed in tourism or tourism related industries (Dorsetcouncil.gov.uk). As these are dichotomous variables, a series of binary logistics analyses were performed to estimate the predictive power of perceived impacts. Significant results, as shown in Table 8, were found for most regression equations, except for the influence of perceived impacts on the overall positivity towards tourism in the 2017 data.

Firstly, the results, as shown in Table 8, indicated the significant and positive influences of perceived positive impacts on the overall

TABLE 8 Regression analysis summary for the consequences of perceived impacts

Dependent variables	Independent variables	2003					2017				
		B	S.E.	Wald	Sig.	Exp(B)	B	S.E.	Wald	Sig.	Exp(B)
Overall positivity towards tourism	Constant	2.805	0.247	129.313	0.000	16.522	1.367	0.227	36.329	0.000	3.923
	Negative Impacts	-0.269	0.181	2.200	0.138	0.764	0.011	0.267	0.002	0.966	1.011
	Positive Impacts	1.034	0.175	34.986	0.000	2.813	0.071	0.252	0.080	0.777	1.074
		-2 Log likelihood = 194.669; Nagelkerke R Square = 0.233					-2 Log likelihood = 124.563; Nagelkerke R Square = 0.001				
Support for more tourists	Constant	0.410	0.118	12.002	0.001	1.506	0.598	0.202	8.769	0.003	1.818
	Negative Impacts	-0.624	0.126	24.424	0.000	0.536	-0.107	0.244	0.191	0.662	0.899
	Positive Impacts	0.973	0.136	51.131	0.000	2.645	0.849	0.248	11.659	0.001	2.336
		-2 Log likelihood = 430.262; Nagelkerke R Square = 0.281					-2 Log likelihood = 144.941; Nagelkerke R Square = 0.146				
Support for government investment	Constant	2.899	0.244	141.313	0.000	18.156	3.939	0.762	26.756	0.000	51.373
	Negative Impacts	0.037	0.196	0.036	0.850	1.038	1.251	0.735	2.895	0.089	3.495
	Positive Impacts	0.584	0.181	10.433	0.001	1.793	-0.169	0.575	0.086	0.769	0.845
		-2 Log likelihood = 169.239; Nagelkerke R Square = 0.069					-2 Log likelihood = 31.935; Nagelkerke R Square = 0.109				
Support for more large-scale events	Constant	2.899	0.244	141.313	0.000	1.715	0.563	0.198	8.076	0.004	1.756
	Negative Impacts	-0.478	0.123	15.204	0.000	0.620	-0.513	0.244	4.429	0.035	0.599
	Positive Impacts	0.922	0.131	49.215	0.000	2.514	0.655	0.236	7.689	0.006	1.926
		-2 Log likelihood = 434.772; Nagelkerke R Square = 0.247					-2 Log likelihood = 149.178; Nagelkerke R Square = 0.116				

positivity towards tourism and explained 23.3% of its variability in the 2003 data. This means that an increase in the perceived positive impacts will positively affect the probability of perceiving tourism as positive. Meanwhile, neither negative impacts nor positive impacts had a significant influence on the overall positivity towards tourism in the 2017 data. The positive impacts were also indicated to positively predict the support for more tourists in both data sets, although this relationship was less strong in the 2017 data. The negative impacts were revealed to negatively influence the support for more tourists in 2003, meaning the residents are less likely to support more tourists in the areas if the perceived negative impacts increases. This relationship was not significant in 2017 data.

Interestingly, while the positive impacts significantly and positively influenced the support for government investment in the 2003 data, the negative impacts positively predicted the support for government investment in the 2017 data. This means that in 2017, the residents were more likely to support the investments from the government in the area if they perceived negative impacts had increased. Finally, both positive impacts and negative impacts were indicated to have significant relationships with the support for more large scale events. Particularly, the residents are more likely to support more

large scale event if the perceived positive impact increases and the perceived negative impacts decrease. These relationships were stronger in the 2003 data.

7 | DISCUSSIONS AND CONCLUSION

This paper studied the long-term impacts of a mega event on local residents in a longitudinal study. It soon became apparent that it was impossible to conduct a true longitudinal study as the residents interviewed in the two data sets were not the same. These are important finding as with the changing population over the period of time in this study, the views of the residents are changing as a result of the positive impacts, more through the course of time as the demographics of the population have changed. Perhaps this raises a question of the importance of measuring long-term impacts when the demographics change. Similarly, the changing views of the negative impacts and how they have changed could be not as a result of time but due to demographic changes. It can be concluded that it is not so important to ensure the respondents are the same for a social science paper. Many other authors have produced excellent

'longitudinal papers' without ensuring the same respondents throughout. Therefore, focus switched to the importance of the findings and in particular whether the hosting of the mega event and the resultant impacts had changed over 14 years. These can still be viewed from the residents' perspectives as an important measure for the future planning of large scale events that require large infrastructure projects and injection of public funding. Thus, this is an important contribution to knowledge and application for other destinations considering large scale events.

The classification of the impacts and the destination attributes was divided into positive and negative, natural and manmade (anthropologic). Various statistical tests were undertaken to evaluate the two data sets and to identify changes in the residents' perceptions over the 14-year time gap.

The findings revealed a significant difference in the relationship between destination Nature attributes and Negative impacts between 2003 and 2017. Particularly, this relationship was not significant in the pre-event stage, yet it was found to be significant in the post-event stage. Perhaps this is as a result of environmental and sustainability concerns, thus highlighting once again the carrying capacity worries of Russell and Faulkner (1998) and also referring to the work of Nunkoo and So (2016) suggesting the level of support for tourists correlates to the perceptions of negative impacts. The first finding of significance is the positive impact that the hosting of the event would bring and the resultant support for more tourists had a clearer relationship in 2003 than 2017, as supporting Latková and Vogt (2012) in that the positive impacts relate more to those that believe they will personally benefit but then after the event realize they had not to the extent they hoped for. The conclusion could be drawn here that the anticipation for the event was stronger than the actual resultant findings. And whilst the event was welcome and research has shown that visitor spending was increased, the long-term increases have not been maintained as supported by the earlier work of Gerrard, (2012) and published data from Statistica.com, (2013). Additionally, the positive impacts were indicated to significantly lead to the support for more tourists and more large-scale events in the areas. This somewhat implies that the positive impacts of the events were felt and acknowledged by the residents, and they are more supportive of tourism and events due to these positive impacts, thus agreeing with Tasci & Severt (2016) with their study of the host-guest relationships.

Furthermore, the concern over the negative impacts had a stronger relationship in 2003 than in 2017, so the negative impacts were not construed to be as important post the event, which could question the Doxey's Irridex (1976) and agreeing with Shone and Parry (2004) who believe events foster better social interaction and the Social Exchange Theory suggestions of Nunkoo and So (2016). However, if these negative impacts did become greater than expected, there was a desire for government financial support to inject funds, whether local or national, to help alleviate these negative impacts as Agarwal suggested in 2002. Concerns about the impact of the hosting did not materialize as expected. Regarding the antecedents the perceived impacts, the engagement of public views was found to have a significant relationship with the perceived impacts, both positive and

negative, but only for the pre-event stage. This relationship was not significant for post-event stage, possibly since almost all respondents did not think that the public views were considered for a tourism development plan in the area.

This important finding co-relates to the work of Lundberg (2015), who discusses the earlier work of Gill and Williams (2011) and questions whether the residents are 'locked-in' by the historical decision making that in later years perhaps seemed counterproductive but made for political reasons in previous years. They suggest the view is dependent on the stages of the tourism life cycle (Butler, 1980) and that the former perceptions were made when the perceived impacts seemed to be more positive yet become negative over time and as the stages of the TALC are reached. Furthermore, Lundberg suggests that residents are not heterogeneous and so view perceptions differently as are the destinations themselves, but the concept of 'lock ins' are similar despite this as the results over time impact how the historical decisions around destination development are viewed.

Finally, the link between the event itself and the construction of venues and other infrastructure and the belief of the positive impacts these would bring was stronger in 2003, before the event, than after the event in 2017. The use of these facilities in the Weymouth and Portland area has focused mainly on the sailing center and associated facilities and therefore not for the use of all the local residents, which Sadd raised concerns about (2004) however, the transport improvements and other smaller developments have been welcomed. A new bypass was constructed and the former naval air station was developed into new commercial, residential and marina facilities. Weymouth and Portland had a 12 point plan to include Olympic related investment opportunities instigated by key stakeholders in the area (Weymouth and Portland Partnership, 2008), supporting the arguments of both Getz and Andersson (2016) suggestion of an events portfolio being a way to offset destination decline and also the previous suggestion of Kennell (2011) about how the use of urban spaces for events can help revitalize destinations. However, it should be mentioned that Agarwal (2002) argues that decline in a destination is a constant threat and not just at the end of the Tourism Life Cycle, but a constant consideration for the interested stakeholders.

For future event organizers, the important findings show that consideration needs to still be given to the long-term benefits of any infrastructure plans to include legacy development, and not just constructed for the short term but to have long-term benefits. The consideration of the local community interests are important to include yet, it should also be recognized that with the passage of time the views of the local residents change as much by demographic changes as by the actual benefits of the impacts. However, this should not stop the important considerations always being made accountable for and therefore continuously reviewed. How knowledge and understanding are advanced is through the 'long-term' of the study which shows the residents perceptions of the expected impacts compared to how they now feel about the impacts after the event which is not seen in previous studies. It refers to the heterogeneity of both the residents and the destination in that their uniqueness plays an important part in the impacts seen, however, this does not preclude other destinations from considering the impacts relevant to their destination and

how the use of an event portfolio and positively impact the stages of the tourism lifecycle. Consequently, this paper adds to the literature around longitudinal studies being possible even when the participants in the study cannot be matched 100%.

In light of changes and current restrictions, investment in the UK tourism industry and in particular British seaside resorts are more important than ever and whilst this paper acknowledges that at the time of writing and overseas travel is not back to pre-COVID times, domestic tourism is seeing a welcome boost, yet events are still not back to full strength. However, the findings of this paper are of use to event portfolio managers and other interested stakeholders in destinations considering events as levers of long-term benefits.

Although this paper provided meaningful findings and implications for the long-term impacts of mega events, it is important to acknowledge some limitations. Firstly, with the pseudo-longitudinal design, the samples of the two data sets are not the same. Together with the demographic change in the study sites, this study only captures the change of the general population, rather than the actual perception change of each resident. While the true longitudinal study with repeated observations should be recommended, it should also be acknowledged that it is extremely difficult for researchers to carry out such studies. Thus, this type of pseudo-longitudinal study would still yield impactful findings. Secondly, the different sample sizes of the two data sets may also reduce the reliability of the comparisons, however, multiple considerations were explored in how to mediate the different sizes in relation to reliability, including random selection of respondents from the original data set to match the sizes, yet the conclusion reached was to leave as they were and recognize this limitation. Finally, due to the paper-based approach of the two surveys, the higher percentages of older age group (55+) participated in the current study. This influences the generalizability of our findings in terms of resident perceptions as both paper-based and web-based surveys tend to attract different age groups, where the former is more affective for older groups, the latter is more attractive to the younger groups (Seil et al., 2021), it is optimal for resident studies to combine both for more representative samples.

DATA AVAILABILITY STATEMENT

The data sets that were used in this study are available upon request from the authors, Sadd, D. and Nguyen, T.H.H.

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APPENDIX A: Results of factor analysis

Factor/Item	Factor loading	Eigenvalue	% Variance explained	Cronbach's alpha (α)
Anthropology		1.337	10.702	0.765
D1. Festivals & events	0.459			
D2. History & culture	0.661			
D6. Surrounding countryside	0.543			
D7. Food and restaurants	0.784			
D8. Nightlife	0.694			
Nature		1.301	13.702	0.703
D3. Beach & weather	0.838			
D4. Harbor & bay	0.792			
D5. Sailing facilities	0.555			
Positive impacts		3.539	17.386	0.847
P1. Improves standard of living	0.809			
P2. Increases awareness of the town	0.711			
P3. Reduces unemployment	0.821			
P4. Brings in income to the town	0.769			
P5. Improves infrastructure	0.667			
Negative impacts		5.391	19.091	0.862
N1. Commercialization	0.718			
N2. Lowers moral values	0.822			
N3. Raises crime levels	0.792			
N4. Brings pollution	0.806			
N5. Rich richer/poor poorer	0.739			
N6. Increases prices	0.726			

APPENDIX B: Official statistics of the age structure of Weymouth and Portland population

Age	2001		2011	
<18	13,341	21.0%	12,421	19.1%
18–24	4556	7.2%	5496	8.4%
25–29	3493	5.5%	3394	5.2%
30–44	13,297	20.9%	11,593	17.8%
45–59	13,187	20.7%	13,732	21.1%
60+	15,774	24.8%	18,531	28.4%
Total	63,648	100.0%	65,167	100.0%
Median age	41		44	

Source: Nomis: Labor market statistics - <https://www.nomisweb.co.uk/>