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The economics of greening the Grahamstown National Arts Festival in South Africa

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The article analyses the broad history underpinning the notion of sustainable development and its context within the events industry in South Africa. It explores the willingness of festival-goers to pay for a hypothetical recycling programme to reduce the negative externalities of the Festival. Results show that festival-goers were, on average, willing to pay an additional R2.30 per “green” ticket to fund the proposed programme. A statistical regression was used to explore the determinants of willing-to-pay. If applied to all tickets, the total willing-to-pay amount far exceeded the actual cost of the recycling programme.

Die ekonomie van vergroening van die Grahamstad Nasionale Kunstefees in Suid-Afrika

Die artikel ontleed die breë geskiedenis onderliggend aan die idee van volhoubare ontwikkeling binne die raamwerk van die Suid-Afrikaanse gebeurtenis-industrie. Dit ondersoek die bereidwilligheid van feesgangers om te betaal vir ’n hipotetiese herwinningsprogram ten einde die negatiewe eksternaliteite van die fees te verminder. Resultate toon dat feesgangers bereid was om gemiddeld R2.30 ekstra per “groen” kaartjie te betaal om die voorgestelde program te finansier. ’n Statistiese regressie is gebruik om die determinante van bereidwilligheid-om-te-betaal te bepaal. Toegepas op alle kaartjies, het die totale bereidwilligheid-om-te-betaal-bedrag die werklike koste van die herwinningsprogram aansienlik oorskry.

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Sustainable development and its application to the tourism industry has become an area of growing research activity worldwide (Mair & Jago 2010). The potential of tourism as a driver of economic growth and development has been coupled with the recognition that it is a resource-intensive industry, and thus “accountable in terms of sustainability at both local and global scales” (Lu & Nepal 2009: 5). Such ideas have also been increasingly applied to tourism events and mega-events, which have become bigger and more frequent (Laing & Frost 2010).

The term “going green” or “greening” has become a popular way of referring to the notion of incorporating an element of environmental awareness into whatever is described. In the event management industry, an event is termed “green” when it has been designed to incorporate sustainability principles by means of, for example, waste management practices, reduced power use, and recycling (Mair & Laing 2012: 2). Laing & Frost (2010: 262) define sustainability widely to include economic and sociocultural sustainability when using the word “green” with reference to events (*cf* Tassiopoulos & Johnson 2009). However, Ayres (2008) and Pelletier (2010) point out that organisations and events realigning themselves with the principle of “greening” should remember that developing sustainably cannot infer the continuous and uninhibited growth that is projected by some proponents of “sustainable development” (Okech 2009: 236). In the long term, the extraction of resources from the earth’s finite biosphere is not sustainable.¹

The rise of “greening” mega-events is likely to grow in the new century with the increasing interest in responsible global citizenship (Getz 1997, Katzel 2007). This article focuses on the environmental sustainability of the Grahamstown National Arts Festival (NAF) within the mega-events industry. By defining the term “greening” and contextualising the resulting trend within the mega-event industry, this article sets out to analyse consumer willingness to pay for a “greener” NAF, using a contingent valuation survey.

1 *Cf* Gowdy & McDaniel 1995, O’Hara 2009, Pelletier 2010: 2, Davidson 2005.

1. Economic growth and sustainability

The interest in sustainability and “going green” can be traced back to the first international gathering regarding issues of global environmental management, namely the 1949 United Nations Scientific Conference on the Conservation and Utilisation of Resources. However, the meaning of terms such as “sustainability” has changed significantly since then (Davidson 2005). Pelletier (2010) notes that, prior to the 1972 United Nations Conference on the Human Environment, hardly anyone outside the scientific field had been involved with issues of environmental degradation.

The term “sustainable development” won popular support after its use in the Brundtland Report (1987).² It was thereafter adopted in Agenda 21 and the Rio Declaration (UNDESA 1992, Davidson 2005, McManus 1996). The rise of the neoliberal ideology under the governance of the Reagan and Thatcher administrations saw the dominant discourse in the North as growth-orientated and opposed to placing limits on economic expansion. According to Davidson (2005), neoliberal ideology has undermined the original definition of sustainable development, leading to a shift in focus from environmental concerns towards economic priorities (Irwin 2001).

The response to the absence of market prices for the ecological system resulted in the further [neoliberal] application of internalisation of external costs, privatisation and monetisation of communal resources, quality control and management, a further liberalisation of markets and international trade, a competitive self-regulation of business, and government intervention (Davidson 2005: 10).

Ayres (2008) argues that the term “sustainable development” has come to mean the near opposite of its original meaning. In some circles the term has been taken to mean “continuous development” which is, by definition, not sustainable. Pelletier (2010: page nos?) concurs that the contemporary meaning assigned to sustainable development “constitutes an uneasy (if rarely challenged) marriage of the promotion of environmental integrity and [...] unconstrained economic growth”.

2 <<http://www.un-documents.net/wcedocf.htm>>

The influential demographic theorist Thomas Malthus (1798) predicted that exponential growth of human populations – and their resulting incomes – would ultimately outstrip the supply of natural resources, which were either absolute in limit or increasing in a linear fashion. Malthus (1798) proposed three solutions, namely the rapid expansion of science and technology to meet the concern; the discovery of substitutes for the natural resources, and the reduction of family sizes.

Neoclassical economic theory holds that the human species will be able to evade the “Malthusian trap” by observing the signals sent by increasing prices of scarce commodities (Perkins *et al* 2006). For example, the rising cost of crude oil would be a signal for entrepreneurs to enter the marketplace and seek alternative energy sources, or to conserve the crude oil on hand. However, the neoclassical school assumes that markets are efficient which is, arguably, where the theory falls short (Perkins *et al* 2006). The price signal conveyed to economic agents may not be transmitting the most sustainable message, especially in the presence of negative external costs that are borne by society and not the individual producer or consumer. For example, the entrepreneur seeking new energy substitutes for crude oil may be responding to the market’s demand for energy and not society’s demand for cleaner energy.

In this context, the greening of tourism events faces challenges, not only in the management, but also in the pricing of such initiatives.

2. Tourism event greening in the South African context

The greening trend is a relatively recent addition to the industry, as noted by Katzel (2007) who traces its history, and offers readers who are unfamiliar with the concept of event greening a list of eleven mega-events that have incorporated environmental sustainability into their planning and implementation. Environmental concerns aside, researchers still debate on whether it pays for a business to go green (*cf* Levy 1995, Hess *et al* 1999, Hamschmidt & Dyllick 2006). However, a number of studies have linked the trend to a stream of possibly unforeseen benefits for businesses, such as cost-saving by pre-empting government implementation of environmental policies or improved

differentiation strategies (*cf* Sharfman & Fernando 2008, Ambec & Lanoie 2008, Bonini & Oppenheim 2008).

It has, however, become an imperative for the events industry to change its perceptions regarding sustainability and to recognise the increasing impact of tourism patterns on the environment (*cf* Laing & Frost 2010¹, Gössling *et al* 2002, Musgrave & Raj 2009). Laing & Frost (2010) note the growing consciousness that socially and environmentally responsible activities should “become the *modus operandi* of business in the 21st century” as an imperative for the shift towards greening events. Von der Heidt & Firmin (2009) view the shift in the events industry as being driven by consumers’ demands for greener choices and customers being prepared to pay a premium for an environmentally sustainable event. Laing & Frost (2010: 262) point out that consumer demand for sustainable events is likely to expand, creating the incentive for event managers to go green or face the possibility of forgoing future patronage (Richardson 2009).

Apart from consumer demand for the shift, there are supply-side incentives for the industry. For instance, in some countries there are regulatory penalties for failing to meet environmental standards when staging events (Laing & Frost 2010). In addition, performers are becoming more environmentally conscious, an example being Radiohead’s refusal to play at the Glastonbury Festival in 2008 due to poor public transport links for visitors to the venue (Laing & Frost 2010).

Katzel (2007) argues that the skill set required of the contemporary event manager includes the ability to make economically, environmentally and socially responsible decisions that take long-term sustainability into account.³

However, sustainability management usually forms an auxiliary task for an event manager that can result in a diluted “green plan” and limited successes when the resulting initiatives are implemented. In addition, the events industry’s tendency to operate on relatively short-term planning cycles can lead to an event manager disregarding the long-term impacts that cumulative events may have on the surrounding environment (*cf* Jones *et al* 2006, Katzel 2007, Lamberti *et al* 2009). The reality of implementing greening initiatives is that they involve the

3 *Cf* Hart 1997, Elkington 1998, Smith-Christensen 2009, Musgrave & Raj 2009.

development of new organisational habits and skills, which is often a significant challenge (Griffin 2009, Raj & Musgrave 2009).

There are a number of South African festivals that have recognised the emerging trend of incorporating environmental sustainability into an event's planning and implementation. For example, festival managers have either drafted sustainability strategies, collaborated with stakeholders to launch sustainability projects or initiated "green ticketing" options for visitors wishing to contribute towards reducing the environmental impact caused by their attendance. South African examples of "greening" festivals can be drawn from the experiences of the following three events: Innibos Arts Festival, Nelspruit; Rocking the Daisies, Darling, and The Klein Karoo National Arts Festival, Oudtshoorn.

The Innibos Arts Festival was established in 2003 as an event to promote, encourage and preserve Afrikaans arts and culture (Van Niekerk & Coetzee 2011). According to Van Niekerk & Coetzee (2011), an estimated 87.000 visitors attended the Innibos Arts Festival in 2007, which reported a total economic impact of R29 021 700 (approximately US\$3.9 million). During the 2009 Festival, organisers undertook a number of greening initiatives (Otterman 2009). They offered additional information to exhibitors regarding biodegradable packaging in order to raise an awareness of the need to switch to environmentally friendly packaging while the Festival's toilet facilities were stocked with biodegradable toilet paper and soaps. In addition, it was announced that the Festival, with local partners, would support the clearing of alien invasive plants in the wetland adjacent to the event's venue (Otterman 2009).

During the 2009 Innibos Arts Festival organisers appointed a South African corporate to be a title sponsor for the event's greening initiatives and launched, among other initiatives, a comprehensive recycling programme, entitled the "War on Waste" (Sappi 2012). The "War on Waste" recycling programme has been extended to other South African festivals such as the Hilton Arts Festival (Sappi 2012). In addition, it was announced that the Festival's management team were intending to host a carbon neutral event by 2014 (Ottermann 2009). In this regard, the Innibos Arts Festival appointed an independent third party to conduct a green audit on the 2009 event in order

to set a baseline measurement of the event's environmental impact (Ottermann 2009). The transparent reporting of greening initiatives is a crucial step in reducing the opportunity for "green washing" in the events industry (McGarry 2010).

"Green washing" refers to the practice of paying lip service to greening principles and delivering shallow initiatives that are not effective in countering an event's environmental impact. The Third King Report and Code of Governance for South Africa highlighted the need to place greater emphasis on ethics and transparency in reporting an organisation's sustainability practices (The Institute of Directors Southern Africa 2009). In order to maintain stakeholders' support for greening initiatives, organisations must enjoy their stakeholders' full confidence that their contributions will not be misappropriated, and will be used effectively for greening protects (Musgrave & Raj 2009). As Musgrave & Raj (2009: 10) note: "... token gestures only add mistrust to what many believe is an ideological principle".

Rocking the Daisies Festival was initiated in 2006 as an eco-friendly music event that was to be held annually at the Cloof Wine Estate located outside Darling in the Western Cape. At the 2009 Rocking the Daisies Festival a total of 10 256 people attended the three-day event which featured predominantly South African musicians and performers (Steadfast Greening 2009).

Complete Events, the organisers of Rocking the Daisies, viewed the Festival as an opportunity to establish an entirely new event to cater for the growing niche market of consumers who are mindful of their impact on the environment and who wish to pay for environmentally sustainable products. The result was the establishment of Rocking the Daisies in 2006 and the recent inception of its "sister event", Rocking the Gardens, in Johannesburg. The incorporation of "greening" initiatives at Rocking the Daisies was a result of the event organisers seeking to create a new product for the festival market in South Africa.

Central to the implementation of event greening initiatives is the drafting of a policy document that outlines an event's sustainability strategies (Musgrave & Raj 2009). Rocking the Daisies set itself ten "green goals" to which it publicly committed itself (Complete Events 2010a). These ten points outline those aspects of the event that visitors can expect to be green. The importance of transparency and ethics in

respect of an event's greening initiatives is clearly observable in the organisation of Rocking the Daisies, with these initiatives being at the core of differentiating their product in the marketplace. The publishing of their "greening audit" by a third party is of crucial importance if they are to maintain their brand image and customer base (Steadfast Greening 2009). In general, event managers are increasingly turning to certification and brands to signal their sustainability to event users (Smith-Christensen 2009).

In terms of "green ticketing" options, Rocking the Daisies has opted to incorporate the entire cost of their greening initiatives into their ticket price while offering incentives in the form of discounts to those who wish to cycle or walk to the event (Complete Events 2010b).

The Klein Karoo National Arts Festival (KKNK) was started in 1995 as an Afrikaans-language festival and is held annually in Oudtshoorn in the Western Cape province. Since it was founded, it has grown rapidly, attracting audiences of 150 000 in 2009, with an economic impact of R87 million (approximately US\$11.6 million) (Van Zyl & Queiros 2009).

During the 2012 KKNK, the organisers collaborated with the Festival's main sponsor, a regional environmental conservation trust, the local tourism agency and the municipality to draft an integrated environmental conservation policy (Business and Arts South Africa 2012). The focal point for the Festival's green activities was the *Trapsuutjies* Tent where visitors could determine the amount of carbon dioxide (CO₂e) they had emitted while travelling to the KKNK (Business and Arts South Africa 2012). As a voluntary offset mechanism for visitors' calculated CO₂e emissions, Spekboom (*Portulacaria afra*) trees were available for visitors to purchase to be donated towards established Spekboom ticket rehabilitation projects in the area (*cf* Mills & Cowling 2006).

In addition to offering visitors a mechanism to measure their travel-related CO₂e emissions and providing a voluntary offset mechanism, the *Trapsuutjies* Tent also featured an exhibition of artwork created from recycled waste, an awareness campaign regarding rhinoceros poaching, a water-bottle refilling station to encourage visitors to reuse plastic containers, and a "Green Soapbox" where speakers could present on environmental issues (Business and Arts South Africa

2012). The waste generated by the KKNK is separated offsite and any recyclable materials are extracted for re-use (Business and Arts South Africa 2012). The KKNK's greening initiatives display a strong collaboration between organisers, exhibitors, performers, visitors, environmental organisations and local government. Collaborations and partnerships are key strategies in achieving greening objectives in that they allow local knowledge to come to the fore and specialist skills to be utilised (McGarry 2012). In addition, collaborations aid the greening process by offering objective feedback from external partners, and providing an increased problem-solving capacity and a level of accountability for the implementation of specific projects. Virtual networks and fori are available for event managers to share ideas, solutions and thoughts on event greening on local, national and international platforms (A Greener Festival 2010).⁴

3. The economics of greening the National Arts Festival

The National Arts Festival (NAF), held annually in Grahamstown in the Eastern Cape, is modelled on the Edinburgh Festival, Scotland, Britain. The NAF offers visitors a variety of genres, such as comedy, theatre, physical theatre, music, music theatre, jazz, dance, art exhibitions, film, walking tours and lectures performed by local and international artists. The NAF line-up has a main and a fringe programme. The main programme consists of heavily sponsored, invited productions, with tickets costing, on average, R35/US\$4.5, and the "fringe" programme, which has no selection criteria, little or no sponsorship and is open to any production company ("fringe" tickets cost, on average, R50/US\$6.5). The first NAF in 1974 had approximately 60 performances and the Festival lasted over a week (Snowball & Willis 2006a: 43). During the 15-day 2010 National Arts Festival, 185 776 people attended a total of 2 691 performances (418 "fringe" productions staging 2 181 performances; 228 "main" productions staging 510 performances).⁵

4 <<http://www.agreenerfestival.com>>

5 T Lankester, personal communication, 25 July 2010.

A study conducted at the 2009 NAF (Saayman & Rossouw 2011) found that the event had an annual economic impact of R82.4 million on the Eastern Cape's economy (production multiplier of 2.77) and created 609 additional jobs in the province.

During the 2010 NAF a noteworthy greening initiative took place at the Village Green Fair. The Village Green Fair was started in 1989 as a craft market catering for visitors to the annual NAF. It is a project of the Grahamstown Foundation. The Village Green Fair has expanded with the establishment of a tented market on the fields of Rhodes University, which houses approximately 300 stalls offering a collection of crafts produced in southern Africa (The Grahamstown Foundation 2010).

During the 2010 edition of the craft market, a multidisciplinary team drafted a sustainability plan, entitled *Greening the Green*, for the Village Green Fair within the context of the NAF (McGarry 2010). In part, the sustainability plan was drafted to hold the organisers accountable for the additional green initiatives commissioned by the *Greening the Green* sustainability plan (McGarry 2010). However, in addition to the accountability function in such a commitment, a sustainability policy document sets the frame for the organisation's green vision (Musgrave & Raj 2009). Lamberti *et al* (2009) present the Sustainable Events Dashboard as a management tool for event managers wanting to assess their event's sustainability policies and/or strategies. The visionary function of sustainability policies and/or strategies should not be taken for granted as changing organisational habits require a clear articulation of the behaviours which are to be encouraged in lieu of the outgoing ones (Okech 2009).

For instance, the *Greening the Green* sustainability strategy sets out the arrangements for a holistic waste management strategy for the Village Green Fair (McGarry 2010). The *Greening the Green* strategy acknowledges that events are usually transient gatherings that require "greening solutions" specific to their own context, and envisions that the Village Green Fair's environmental initiatives should be stakeholder driven (McGarry 2010, Okech 2009). Involving stakeholders in "greening" processes encourages collaborative problem-solving between organisers, government, civil society and businesses already involved in sustainability initiatives in the area. In addition, *Greening*

the Green's waste management strategy acknowledges the context of a developing country within which the event is held, and the need to create "greening" initiatives which jointly address the prevailing social issues, such as the livelihoods of the community of informal waste-pickers in the area (McGarry 2010).

Among the Greening the Green strategic plan's activities to reduce the environmental impact of the Village Green is the intention to offer economic incentives in the form of reduced rental fees to food vendors operating within the Village Green who are willing to switch to biodegradable packaging material (McGarry 2010).

3.1 The costs and benefits of the National Arts Festival

According to Crompton *et al* (2001), some of the cost drivers of mega-events include food and beverages; nightclubs, lounges, and bars; retail shopping; accommodation expenses; private vehicle expenses, and commercial transportation. However, as Katzel (2007) highlights, event hosting is a double-edged sword with the host reaping the economic benefits while incurring the associated social and environmental costs. Environmental degradation in the wake of an event may cause a variety of costs that have an impact on society as a whole rather than on private individuals. Dávid (2009) provides a detailed review of the types of environmental externalities caused by events. In the case of the NAF, Snowball & Antrobus (2002) point towards pressure being exerted on existing infrastructure, traffic-flow problems, overcrowding, increased security requirements and friction between local and visiting storeholders as social costs which are not adequately accounted for (*cf* Smith-Christensen 2009).

3.2 Valuing non-market environmental goods and services

In the neoliberal theoretical framework, the shift towards going green is a response to the market failure created when prices deviate from scarcity values and individual firms inadvertently or intentionally make decisions which are entirely based on their private profit-maximising function at the expense of society (Perkins *et al* 2006). Batabyal *et al* (2003) note that the economic response to alleviating environmental degradation is centred on incorporating the broadly defined costs and benefits – private and social – of environmental

goods/services into monetary values in order to allow these prices to act as scarcity signals within the existing market system.

In general, it is difficult to measure environmental goods because they are non-excludable and seemingly non-rivalrous in consumption (Fisher *et al* 2009: 647).⁶ However, the most widely used method of estimating the non-market values of environmental attributes or amenities is to make use of a contingent valuation (CV) study to estimate respondents' willingness-to-pay (WTP) for the particular attribute/amenity (Frykblom 1997). Using carefully designed questionnaires, most effectively administered by means of face to face interviews, the method involves directly asking consumers what the maximum amount is they would be willing to pay for a good or service that is not currently sold on the market (Snowball 2008, Carson *et al* 2003).

The CV method is not without its critics and care should be taken to minimise bias when constructing a CV survey (Kahneman & Knetsch 1992, Desvousges *et al* 1993, Diamond & Hausman 1994). However, according to the National Oceanic and Atmospheric Administration (NOAA) Panel report on CV analysis, the method can "produce estimates reliable enough to be the starting point of a judicial process of damage assessment, including lost passive-use values" (NOAA 1993: 44). Carson *et al* (2003) performed an in-depth study into the literature regarding the controversies addressed by Diamond & Hausman (1994) and found that "... claims that empirical CV findings are theoretically inconsistent are not generally supported by the literature".⁷

6 The consumption of private goods can usually be restricted in that the public can be "excluded" by modes of ownership. However, environmental amenities and services are said to be typically "non-excludable" because they are free and open for public use. In addition, private goods are said to be "rivalry in consumption" because an individual's consumption of a good tends to decrease another's opportunity to consume it. Environmental goods and services are said to be "non-rivalrous in consumption" because an individual's single use of a resource does not have an effect on another's ability to consume it. However, the non-rivalrous characteristic of an environmental good or service could fall away, given the collective effects of individuals' consumption patterns.

7 Cf Bohm 1979, Carson & Mitchell 1993, Botelho & Pinto 2002, Murphy *et al* 2005, Snowball 2008.

4. Method

A contingent valuation study was conducted during the 2010 NAF to determine the mean WTP of Festival visitors for a hypothetical recycling programme. The study consisted of 132 face to face interviews conducted between 20 June and 4 July 2010. The CV survey collected both qualitative and quantitative cross-sectional data. The interviewers and research supervisor were briefed and trained in the month leading up to the data collection with regard to the format, process and protocol of conducting the interviews at the NAF. The interviews were conducted on a quota based on past studies relating to the demographics of visitors to the NAF. This was done to ensure that the survey captured a representative sample of the NAF population (Snowball & Antrobus 2001, Antrobus & Snowball 2004, Snowball & Willis 2006b). The CV survey consisted of four sections. Section one aimed to establish the respondents' use values and general attitude towards the environment, using Von der Heidt & Firmin's (2009) "green performance assessment" (GPA). GPA measures consumers' collectivist value, their green buying behaviour, their green orientation, their conception of the severity of environmental problems and their reaction to the inconvenience of going green.

In Section two the respondents were informed of a hypothetical recycling programme. The following scenario was used:

The staging of the National Arts Festival has an environmental impact on Grahamstown with more waste from Festival-goers putting strain on the rubbish collection and dumping. This, along with other negative environmental impacts, has led the organisers to think about introducing a recycling programme at the Festival. The programme will provide special bins for different recyclable materials in different places around Grahamstown and the hiring of a team of workers to collect and neatly bundle the material. This would cost around R 200 000 (US\$ 26 866, € 20 553, £ 17 969) per year. One way of getting this additional money is to put a flat rate surcharge on every ticket sold to attend a Festival performance.

The interviewer then asked whether respondents would be willing to support such a programme and, if so, what the maximum amount was they would be willing to pay to fund the programme. The pricing mechanism was a proposed surcharge on every ticket sold to attend a NAF performance. The WTP scenario and questions were carefully designed to limit hypothetical bias by describing an item with which

visitors were familiar and making use of a realistic payment vehicle (Carson & Mitchell 1993). In addition, the word “greening” was removed from the questionnaire so as not to introduce a possible trend bias.

Section three consisted of questions to determine how and why the visitors calculated their WTP amount for the hypothetical programme, as well as other questions designed to test the consistency of the respondents’ answers to those given in Sections one and two.

Section four collected demographic information. Respondents were given the opportunity to review their answers and WTP amount upon completion of the survey. Hypothesised determinants of WTP are listed in Table 1.

Table 1: Hypothesised determinants of WTP for the contingent recycling programme at the 2010 National Arts Festival

Variable	Definition	<i>A priori</i> expectation
Environmental concern (GPA)	Measured using Von der Heide & Firmin’s (2009) “green performance assessment” where an index measurement was calculated as discussed below	Positive
Ownership values	Measured by the number of NAFs previously attended	Positive
Origin	1 if non-local 0 if local	Negative
Use values (Use)	Measured by the number of ticketed shows a respondent attended	Positive
Age	Recorded in 10 categories ranging from 1 (younger than 20) to 10 (older than 60)	Positive
Sex	1 for male respondents 0 for female respondents	Positive

Variable	Definition	<i>A priori</i> expectation
Education (Edu)	0 if none 1 if primary 2 if secondary 3 if apprenticeship 4 if one tertiary qualification had been obtained 5 if more than one tertiary qualification had been obtained	Positive
Race	1 for White visitors 0 for Black, Coloured and Asian visitors	No relationship expected
Household income (HhIncome)	1 if less than R30.000 2 if R30.001-R35.000 3 if R35.001-R40 000 4 if R40.001-R45.000 5 if R45.001-R50.000 6 if R50.001-R55.000 7 if R55.001-R60.000 8 if R60.001-R65.000 9 if R65.001-R70.000 10 if greater than R70.000	Positive

To calculate a visitor’s “green performance assessment” (environmental concern), an index was created using the respondent’s average response to a group of questions asked in relation to each of the five variables used in Von der Heidt & Firmin’s (2009) study. For example, Figure 1 shows the question asked to determine the respondent’s collectivist value.

2. On a scale of 1-10 (with 1 being “not important at all” and 10 being “very important”), how important are programs which protect water resources in the area where you live so you can have clean and safe water to drink?

1 2 3 4 5 6 7 8 9 10 0 Don't know

Not important at all Very important

Figure 1: Example of a question asked to determine the respondent's “collectivist value”

Four questions regarding the remaining GPA variables followed, with respondents giving a value from 1 to 10 on the same scale. The respondents' GPA index was calculated by finding their mean answer to all five variables.

By applying a statistical model to the data captured in the CV survey, a regression analysis was run to estimate the (population) mean of the dependent variable, in this case WTP, given the known values of the independent variables in Table 1. *A priori* a positive relationship was predicted to exist between WTP and the respondents' “green performance assessment” (*ceteris paribus*, an individual with a greater concern for the environment would place a higher value on a contingent recycling programme than someone with little concern for environmental issues), age (*ceteris paribus*, the older an individual is, the higher the bequest value placed on the environment for future generations which would result in higher WTP values), household income⁸ (*ceteris paribus*, the greater the amount of disposable income an individual has, the greater the amount they would be able and willing to pay for the contingent recycling programme), education (*ceteris paribus*, higher levels of education are likely to indicate more knowledge of, and thus concern about, the environment), ownership (*ceteris paribus*, the more National Arts Festivals an individual had previously attended, the greater the sense of responsibility for the waste generated by the NAF would be) and use values (*ceteris paribus*,

8 Household income was used as it is submitted to be a better marker of disposable income, as opposed to individual income.

the more an individual uses a resource, the more s/he would be WTP to preserve it).

In addition, *a priori* a negative relationship was expected between non-local visitors and WTP in comparison to local festival visitors (*ceteris paribus*, local visitors would place a higher value on the hypothetical programme because they have to endure the majority of the external costs associated with hosting the NAF).

The general model specification was Equation (1):

$$\begin{aligned} \ln\{WTP_i\} = & \beta_1 + \beta_2 Age_i + \beta_3 Education_i + \beta_4 Race_i + \beta_5 Sex_i + \\ & \beta_6 HbIncome_i + \beta_7 GPA_i + \beta_8 Ownership_i + \beta_9 Use_i + \\ & D_1 Origin_i + u_i \end{aligned} \quad (1)$$

5. Results

The sample consisted of slightly more female (57%) than male respondents. Of the respondents, 63% were White and 37% Black (including African, Coloured and Indian race groups). A significant proportion (70%) of the sample was younger than 40 years, with the next biggest percentage (32%) being in the 31-40 age group. The sample group was highly educated, with 53% having one tertiary level qualification and 24% having two or more tertiary level qualifications. On average, each respondent attended 6 ticketed performances during her/his stay at the NAF.

The sample's average green performance assessment (GPA) was 6.3/10 while the average response with regard to the importance of implementing the proposed recycling programme was 7/10, with 1 being "not important at all" and 10 being "very important".

A positive response was recorded in respect of paying more for a greener NAF, with 72% indicating willingness to pay an extra amount for the proposed programme. 77% of the respondents indicated that they would purchase the same number of tickets if faced with an increase of R1.50 [US\$0.20] per ticket.⁹

A large proportion (99.22%) of respondents stated that they intended to return to the NAF in 2011, indicating that they had more

9 The estimated amount of ZAR 1.50 was used as the proxy amount per ticket needed to recoup the costs of implementing the hypothetical recycling programme.

than likely responded with the understanding that they may have to incur the WTP amount when purchasing NAF tickets in the future.

An OLS linear regression was performed on the sample data; however, the log-linear functional form was preferred for reporting purposes as the goodness-of-fit was better.¹⁰ The overall model was statistically significant (F-statistic significant at the 1% level) and, for cross-sectional data with small sample sizes, the model fitted fairly well (*ceteris paribus*, 33.28% of the variation in the percentage change in the WTP could be explained by variations in the dependent variables). Ten observations were excluded due to either lack of completeness or internal inconsistencies in their specific responses.

The log-linear regression was calculated as Equation (2):

$$\begin{aligned} \text{Ln}\{WTP_i\} = & 0.933495 + 0.031389Age_i + 0.146066Education_i + \\ & 0.136128Race_i + 0.018734Sex_i + 0.072945HbIncome_i + \\ & 0.161818GPA_i - 0.042144Ownership_i - 0.006951Use_i + \\ & 0.029970Origin_i \end{aligned} \quad (2)$$

A binary probit regression was used to establish which variables were significant in determining the probability of being willing to pay or not (Table 2). The variables of age, education, a respondent's environmental concern (GPA) and the number of ticketed performances the respondent was attending were found to have a positive relationship on WTP at the 1% level of significance.

Table 2: Results of factors influencing visitors' willingness to pay for a hypothetical recycling programme at the 2010 National Arts Festival

Variable	Dependent variable: WTP	Dependent variable: Ln(WTP)
Constant	-3.874906	-0.933495
Age	0.092641	0.031383
Education	0.513612**	0.146066**
Race	0.317592	0.136128
Sex	0.240694	0.018734
Household income	0.349234**	0.072945**
GPA index	0.544881***	0.161818***

10 A constant was added to the WTP amounts in order to include zero responses in the log-linear regression. The application of this technique has no effect on the coefficients as the log of a constant is zero (Snowball 2008: 156).

Ownership	-0.144056**	-0.042144*
Use values	-0.087100	-0.006951
Origin	-0.140628	0.029970
Mean dependent variable	2.303279	0.939806
Adjusted R-squared	0.261671	0.332810
Prob(F-statistic)	0.000001	0.000000
Durbin-Watson stat	0.602876	0.602307
Total obs included	122	122

Note: *** Significant at the 1% level
 ** Significant at the 5% level
 * Significant at the 10% level
 Table calculated using EViews 6

Tests for multicollinearity were run on race/household income, education/race and age/household income, with results being between 0.028813 and 0.296894, indicating that multicollinearity, while present, was within acceptable levels.

Results of the log-linear model reported in Table 2 show that, holding all other variables constant, if environmental concern was to increase by 1 index point, overall WTP would increase by 16.18% (significant at the 1% level). This is as expected, and acts as an important validity test, since one would predict that people who are more environmentally concerned would be WTP more for a recycling initiative. This finding indicates that the study was measuring existing preferences, making the WTP results more reliable.

Holding all other variables constant, if education were to increase by a category, overall WTP would increase by 14.61% (significant at the 5% level). This is as expected *a priori* since higher levels of education are likely to indicate more knowledge of, and thus concern about, the environment. However, it should be noted that visitors to the NAF tend to be highly educated; thus NAF visitors are likely to have a higher average WTP than the general population.

Holding all other variables constant, if household income were to rise by a category, overall WTP would increase by 7.3% (significant at the 5% level). This result was an *a priori* expectation in that the greater an individual's amount of disposable income is, the greater the amount s/he would be able to afford to pay for the recycling

programme. This is an important reliability test, since it shows that the respondents were considering their budgets when making WTP decisions, as one would in a real market scenario.

Holding all other variables constant, if the number of previous NAFs attended by the respondent increased by 1, the overall WTP would decrease by 4.21% (significant at the 10% level). This result was opposite to the *a priori* expectation. It was expected that as an individual who attends more NAFs such a person should feel a greater sense of responsibility for the waste generated by the NAF. However, the negative result indicated that this was not the case. One suggested explanation is that regular NAF visitors have responded thus with a view to limiting the possibility of increased ticket prices in future as a result of greening costs being incorporated.

6. Discussion

Figure 2 indicates the negative relationship between the WTP amount and the percentage of the sample group willing to pay for the hypothetical recycling programme at the 2010 NAF. As the surcharge per ticket rises, the percentage of individuals within the sample group willing to pay decreases. This relationship reflects the existence of diminishing rates of marginal utility for the recycling programme and conforms to economic theory – as the price of a good increases, the quantity demanded decreases (Gowdy & Erickson 2005). The estimated mean WTP for the population was R2.30 per ticket as indicated by the vertical red line on the graph (with the median WTP for the sample being R2.00). If the NAF were to use incentives to channel consumers' choices, they could either

1. offer visitors a “green ticket”, which includes the R2.30 and which the visitor can purchase on request;
2. raise a surcharge of R2.30 on all NAF tickets to “green” all tickets, or
3. raise a surcharge of R2.30 on all tickets with the consumer given the choice of opting out in favour of paying the standard ticket rate.

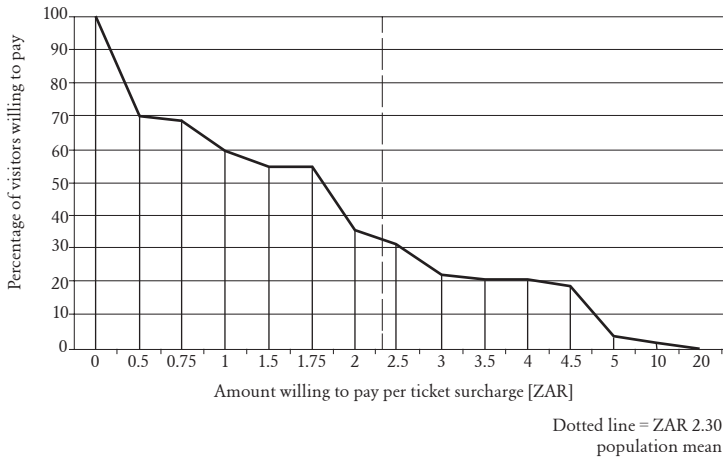


Figure 2: Percentage of sample WTP for a hypothetical recycling programme at the 2010 National Arts Festival

If the NAF were to implement option 2, the extra revenue generated for allocation towards greening initiatives would amount to R302 346.50, based on the number of tickets sold in 2010. However, this amount would need to be adjusted downwards to account for the price elasticity of NAF tickets. It is noteworthy that the unadjusted amount would comfortably exceed the proxy costs of implementing the hypothetical recycling programme described in the CV survey. However, the organisers would need to consider the administrative burden and choose the most efficient option in collaboration with the service provider who manages the ticketing system on behalf of the NAF.

In both the South African and the international contexts, it is becoming increasingly clear that festivals need to pay more attention to incorporating environmental sustainability into their business plans. Reasons for doing so include the moral obligation to use environmental resources sustainably so that future generations can also benefit from them (Brutland Report 1987), but also include

shorter term goals of responding to consumer demand for greener events (Von der Heide & Firmin 2009).

Drawing from the experiences of other South African festival greening initiatives, general principles for success are likely to include incorporating a “green plan” into the core of the business plan of the event, rather than shallow initiatives that “green wash” the event and leave consumers disillusioned; involving local and regional stakeholders (businesses, consumers, performers, exhibitors and local government) in drafting, marketing and implementing the green plans, which are then openly available to all, and transparent reporting of greening initiatives, which incorporate baseline and follow-up auditing by an outside agent (to build consumer confidence in the initiative).

The WTP study at the NAF has shown that greening initiatives need not be a financial burden for festivals, but could well be covered by visitors who are environmentally aware and thus willing to pay to offset the negative environmental impacts of their actions.

7. Conclusion

There are various ethical and economic incentives for mega-events to green, although the profitability of greening has not been substantially proven (Laing & Frost 2010, Levy 1995, Hess *et al* 1999, Hamschmidt & Dyllick 2006). The methods used by environmental economists to value non-market environmental commodities are well suited to factoring in these incentives while incorporating the private and social costs incurred in staging mega-events. Organisations realigning themselves with the principle of “greening” should remember that developing sustainably cannot infer the continuous and uninhibited growth that is projected by some proponents of sustainable development (Aryes 2008, Pelletier 2010).

The findings of this study provide significant insight into the consumer demand for a greener National Arts Festival by showing that the estimated population mean WTP for a hypothetical recycling programme at the 2010 NAF was R2.30 per ticket. As expected, visitors’ environmental concern, level of education and household income were found to be statistically significant and positively related to a consumer’s WTP for the proposed programme. The results

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correspond with the literature regarding the demand for greener events and are generally relevant, not only to the NAF, but also for all events contemplating implementing greening strategies.¹¹

11 Cf Getz 1997, Katzel 2007, Von Der Heidt & Firmin 2009, Laing & Frost 2010.

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