

Investigating how the attributes of live theatre productions influence consumption choices using conjoint analysis: the example of the National Arts Festival, South Africa

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Abstract

While there is a fair amount of work on determinants of demand for the live performing arts, results have often been contradictory with little explanatory power. This may be because of the difficulty in describing the attributes of a performance, particularly in terms of its quality, and the heterogeneity of consumer preferences. This article uses conjoint analysis, also called choice experiments, to investigate the impact of the attributes of live theatre performances on demand, using data collected from 483 randomly chosen attenders at live theatre performances at the 2008 South African National Arts Festival. Attributes include the type of cast (professional, semi-professional or amateur), reputation of the producer/director, the context or setting, production type and ticket price of the show. Results largely support the a priori expectations based on the results of other demand studies. For example, it is found that the age of consumers affects the type of show chosen, that utility and willingness to pay increase for shows with professional and semi-professional casts and that 93% of the potential audience prefer shows with a South African context. It is concluded that the method could prove useful to both event organisers and policy makers, especially where the goal is to broaden access to the arts.

1 Introduction

A significant amount of work on modelling the determinants of demand for the performing arts has been conducted to date (see Levy-Garboua and Montmarquette 2002 and Seaman's extensive 2005 literature review). Factors that have been shown to influence demand have included traditional determinants, like own price, the price of substitutes and audience characteristics (income, education, age, social class, etc.). The motivation for cultural consumption and the development of 'taste' has also resulted in useful frameworks for investigating demand, leading to the 'rational addiction' and 'learning-by-consuming' models (Levy-Garboua and Montmarquette 2002), as well as the omnivore/univore theory (Peterson 1992, 2005; Chan and Goldthorpe 2005).

While the quality, or perceived quality, of the good itself has sometimes been included in demand models (for example, Throsby 1983; Urrutiaguer 2002), the difficulties of finding an objective measure for this attribute have more often precluded it from demand studies, even though its impact could be potentially large. This is particularly the case with live performing arts, where the consumer cannot know the nature of the good entirely before making the consumption decision, thus introducing various categories of risk (Colbert 2003).

A related area that has been under investigation is how the attributes of the theatre performance itself impact on demand. This is not only partly because finding general attributes which are relevant in describing a variety of shows is challenging, but also partly because using traditional contingent valuation methods to model hypothetical choices would require a vast number of observations if even a few attributes were to be investigated. A possible solution to the latter problem is to use the newer conjoint analysis (also called choice

experiments), which can give information on the part-worths and trade-offs that consumers make between attributes without having to have a large number of different scenarios (Hanley et al. 2001). However, one of the challenges of this method is that it is more cognitively challenging than a simple willingness to pay scenario. This has limited the use of choice experiments because it has been generally agreed that one has to use more expensive interview data collection methods, rather than the less costly self-completion questionnaire method.

This article uses such a choice experiment to investigate the impact of the attributes of live theatre performances on demand, using the 2008 South African National Arts Festival audience as a case study.

2 Determinants of demand for the performing arts: a literature review

There is a considerable literature on the determinants of demand for the performing arts, but as Seaman (2005) notes, results have often been contradictory and without a clearly determinable pattern. In this section, some of the major research directions are discussed under two sub-headings: socio-demographic variables and motivations for attendance, and attributes of the good itself (quality, price and risk).

2.1 Socio-demographic variables and motivation for attendance

The socio-demographic variables of the population, such as income, education (arts-related and general) age, sex, etc., have all been found to have some impact on demand, but have often proved to have little explanatory power. For example, while rising incomes would be expected to make a luxury good, such as a theatre ticket, more affordable, it might also increase the opportunity cost of time-intensive leisure activities, since higher income is often associated with less leisure time (Werck and Heyndels 2007).

An early study by Holbrook and Hirschman (1982) suggested that consumer theory needed to be expanded to include not only socio-demographic variables and the attributes of the good itself but also consumer experiences of making choices and consumption itself. This would necessarily bring in much more subjective data, 'consumer fantasies, feelings and fun', which would vary with the personality traits of the person in question.

Swanson et al. (2008) build on this idea, also arguing that demographic variables, on their own, cannot explain demand patterns because the motivation for attendance is an important underlying factor. Based on previous studies, they identified six broad areas of motivation for attendance at live performing arts: the aesthetic or artistic value of the work; for self-educational purposes; escapism from everyday problems; self-esteem enhancement; and social interaction. They then asked a sample of attenders at a US arts centre to respond to statements which revealed these motives for attendance. For example, attenders were asked to respond to statements like, 'I go to live performances to temporarily escape life's problems', using a Likert scale where 1 meant 'not at all descriptive of me' and 7 meant 'very descriptive of me'. ANOVA tables and *t*-tests were then used to analyse the results. Swanson et al. (2008) also suggested that different motivations for attendance could be identified between frequent attenders and those who seldom attend; subscribers (what Throsby (1990) refers to as the 'captive audience effect'); and groups based on the time of purchasing the ticket (far in advance on or the day of the performance).

When combined with demographic variables, the Swanson et al. (2008) study has some interesting findings. For example, women are more likely to attend because of artistic, educational and recreational motives; the self-esteem motivation is significantly higher for those older than 50; attenders with lower educational attainment are more likely to be motivated by escapism and self-esteem; attenders with high household incomes are more likely to be motivated by social interaction than others; and (as one would expect) subscribers and those who buy tickets far in advance are more likely to be motivated by the aesthetic or artistic quality of the production.

Other important influences are the values transmitted by families and at school, and childhood exposure and participation in the arts. Research has found that tastes and preferences are usually set by the age of 20,

suggesting that early exposure to the arts is a crucial determinant of the demand of adults (Colbert 2003). It seems quite likely that the development of a taste for live theatre, or indeed any cultural product, is formed as a result of education (formal and informal), which often depends on social position or status.

When one disaggregates the performing arts into ‘high’ and ‘low’ cultural forms, demand determinants become even more complex and interesting. The homology argument suggests that people with higher income and education levels (generally also with higher levels of social standing or status) will be more likely to attend ‘high’ culture events, such as ballet and opera, for which greater cultural capital is needed. Groups with lower education and income will be more likely to attend ‘lowbrow’ culture, such as musicals and the cinema. However, Chan and Goldthorpe (2005), in their study of theatre, dance and cinema attendance in the UK, find more evidence for the ‘omnivore/univore’ theory, originally put forward by Peterson (1992, and reviewed in Peterson 2005). Their finding is that people in a higher social stratum generally attend a wide variety of cultural performances, including ‘high’ and popular cultural forms (omnivores), while those with lower social status were more likely to attend popular or ‘lowbrow’ cultural performances only (univores).

A similar study on social stratification and the visual arts in England by Chan and Goldthorpe (2007) also supported the omnivore/univore theory. These conclusions were, however, criticised by Wuggenig (2007) on the grounds that their data were not detailed enough to distinguish between ‘high’ and ‘low’ or popular visual arts and that key elements of Bourdieu’s theory (specifically the ‘field’ concept) were not taken into account. A later article by Bellavance (2008) suggests that the old/new distinction is at least as important as high/low attributes in tracking the relationship between cultural consumption and social status or class. In this model, greater (or at least similar) explanatory power is found in tracking groups whose consumption preferences are for ‘old’ forms (traditional, established conformist) versus ‘new’ forms (modern, up and coming, rebellious). Further, the old/new distinction can cut across the high/low categories leading to ‘overlapping hierarchies’ which extend across ‘the symbolic boundaries between art genres’ (Bellavance 2008, p. 26).

Trienekens (2002) further argues that it is wrong to see people without western or European cultural capital as *lacking* in cultural capital—merely that they have a different sort of cultural capital. In multi-cultural societies (like her Rotterdam study), class, often related to education, is found to have a greater impact on demand for ‘high’ cultural forms than ethnicity or race, since it is educational attainment that enables the appreciation traditional ‘high’ cultural forms. However, ethnicity is an important indicator of attendance at popular and community-based cultural events, which require different types of cultural capital.

Levy-Garboua and Montmarquette (2002) interrogate two theories of how taste for the arts can be developed, given that some cultural capital is required in arts appreciation: ‘learning by rational addiction’ and ‘learning by consuming’, both of which posit that current demand will depend on previous experiences. In the case of rational addiction, ‘the assumption is consistent forward looking behaviour, where consumers maximise an intertemporal utility function and are willing to sacrifice current utility for future utility by making investments in human capital’ (Seaman 2005), which will enable them to enjoy and appreciate the good in the future. The learning by consuming model suggests that consumers have stable underlying preferences and discover them through consumption. Levy-Garboua and Montmarquette (2002) find evidence to support both theories, which they argue are linked to ways of coping with the unknown quality of any particular performance, i.e. the risks inherent in performing arts consumption.

2.2 *The characteristics of the good itself: quality, price and risks*

As with any good, its price needs to be investigated as an important determinant of demand. There is some evidence that the performing arts probably have more in common with luxury goods than with basic goods (Levy-Garboua and Montmarquette 2002; Seaman 2005), but quite a number of studies have found that the consumption of the arts is not as sensitive to price as is expected: ‘This apparent price insensitivity suggests that performing arts organisation have a certain amount of flexibility, within the limits of which it would be possible for them to raise their prices without causing a significant decrease in demand, at the same time increasing

revenues' (Colbert et al. 1998). This may be, in part, because price is a 'psychological variable', that is, it is perceived by consumers to be an indication of value. In this case, a higher price would not necessarily decrease the quantity demanded (Colbert 2003, p. 36). Another reason for price inelastic demand could be that the ticket price represents only a small proportion of the total cost of attendance, which may include transport, leisure time, meals, parking and accommodation for out-of-town visitors (Frey and Vautravers-Busehart 2000). Seaman (2005) found that studies which attempted to account for the total cost of attendance (including travel to the venue and the opportunity cost of time) found a more price elastic demand, as do Levy-Garboua and Montmarquette (2002).

Price sensitivity may also be linked to demographic variables: Colbert (2003) finds that arts attenders can be divided into two groups, who have difference responses to ticket price: 'high earners' for whom ticket price is not a constraint, but leisure time is, and 'seniors and students' who have the time, but not the income and who will be more sensitive to changes in ticket price than the former group.

Although the quality, or perceived quality, of the artistic good is also expected to be an important determinant of demand, it has proved most difficult to find an indicator for. Throsby (1983) developed a complex indicator based on press reviews and showed that quality had a more important effect on demand than did ticket price. Abbe-Decarroux (1994) used an OLS model to estimate demand for performing arts events using a theatre in Geneva as a case study. The study emphasised the importance of the 'consumer's perception of quality prior to consumption' in determining demand. The study estimated an OLS model with actual ticket sales at 64 productions as the dependent variable and a number of show attributes related to perceptions of quality, such as the period of the play, the reputations of the author, producer and cast, and a press review index, as the independent variables. In general, results showed that quality indicators were important determinants of ticket sales.

Similarly, in a study of the reasons for the declining demand for Flemish theatre, Werck and Heyndels (2007) find that production characteristics, such as the original language of the play, whether it is an adaptation or not, the number of actors, the age of the playwright and whether it is a new production or a remake, have a significant impact on demand.

The importance of quality perceptions stems from the risky nature of live arts consumption, which is a result of incomplete information in the arts market. Arts consumption will always be a risk, since the quality of the good is never completely known prior to purchase (Throsby 1994) and is at least partly determined by the opinions of consumers themselves. While more information (at least in terms of inputs) is known to producers, the 'unexpected' might still occur, resulting in fluctuating quality from one performance to another (Abbe-Decarroux 1994, p. 100).

Colbert (2003) identifies different categories of risk associated with cultural consumption: Functional risk, which is the risk of being bored and thus wasting one's time and money; Social risk is the risk of being seen a place that is 'incompatible with our perception of how other view us'; Psychological risk is the risk of 'being at a place that is incompatible with our self image'; and Economic risk is the risk associated with spending money and leisure time on the activity.

Since some short-term risk taking is probably unavoidable, experience and information (as discussed in 2.1) can help to reduce risk. Attributes of the good which may reduce risk (such as the professional status of cast, how well known the director and/or playwright is) may thus be important determinants of demand and are frequently used in the marketing of almost all cultural goods. It has also been suggested that part of what demographic variables are capturing is risk aversion. For example, older consumers are found to be more risk-averse than younger groups, which may influence the programming choices of arts companies catering to this audience towards the choice of better know, mainstream productions, rather than new or experimental work (Seaman 2005).

3 The choice experiment method

Choice experiments are based upon consumer demand theory, particularly the theory of consumer behaviour following Lancaster (1966) and Rosen (1974). This assumes that utility to customers, for example from a theatrical production, derives from the characteristics of the production.

In stated choice experiments (CEs), consumers are presented with sets of alternative combinations of attributes (or characteristics) of, for example theatre productions, and are asked to choose their most preferred alternative. Repeated choices by consumers from sets of alternatives reveal the trade-offs customers are willing to make between the attributes, e.g. of theatre productions. Each individual is asked to choose one alternative from each choice set. This choice is modelled as a function of the attributes using Random Utility Theory.

Random Utility Theory is based on the hypothesis that individuals will make choices based on the characteristics of a good (an objective component) along with some degree of randomness (a random component). This random component arises either because of randomness in the preferences of the individual or the fact that the researcher does not have the complete set of information available to the individual. Consider a respondent facing a set of K alternatives, denoted by $j = 1, \dots, K$. The utility function for respondent i related to alternative j is specified as

$$U_{ij} = V_{ij} + \varepsilon_{ij},$$

where $U_{ij} = V_{ij}$ is a non-stochastic utility function and ε_{ij} is a random component. If it is assumed that V_{ij} is a linear utility function, then $V_{ij} = x'_{ij}\beta$. The conditional logit (CL) model is derived by placing restrictive assumptions on the random component of the utility: error disturbances are assumed to have a Type 1 extreme value distribution with the distribution function

$$\exp(-\exp(-\varepsilon_{ij})).$$

The indicator function $1_i(\cdot)$ for the selection of a generic alternative j may be expressed as

$$1_i(j) = \begin{cases} 1 & \text{iff } U_{ij} = \max_{k=1}^K \{U_{ik}\} \\ 0 & \text{otherwise.} \end{cases}$$

Differences from independent and identically distributed (iid) errors from a Type 1 extreme value distribution are distributed logistically. As a consequence, assuming a linear indirect utility, the probability that the individual utility of alternative j is the largest among those in the choice set C facing individual i is conditional logit (McFadden 1974):

$$P_i(j) = \exp(x'_{ij}\beta) / \sum_k \exp(x'_{ik}\beta), j, k \in C$$

A property of the conditional logit (CL) model is the independence of irrelevant alternatives (IIA). IIA implies that all cross effects are equal; so, for example, if one type of production (e.g. drama) gains in utility, it draws shares from other types of production (e.g. musical and comedy) in proportion to their current market share. The IIA property derives from the assumption of an independent and identical distribution (iid) in the random utility function: independence of utility across choices.

Other forms of choice modelling are not constrained by the IIA condition of the CL model. The mixed logit (MXL) model allows random taste variation, according to some specified distribution, unrestricted substitution patterns and correlation in unobserved factors over time. In the MXL model,

$$U_{ij} = \beta' x_{ij} + \varepsilon_{ij}$$

the utility function of each customer has some random taste parameters β_i with values that depend on the values of the parameters θ of an underlying distribution $f(\beta|\theta)$. The choice of distribution strongly affects the properties of the model (Hensher and Greene 2003). Such random taste parameters β_i can be correlated among alternatives and—because ε_{ij} is independent and identically distributed (*iid*) Gumbel, conditional on the parameter draw the choice probability is still logit. However, the marginal choice probability must be obtained by integrating the distribution density over the range of parameter values:

$$P_i(j) = \int \exp(x_{ij}\beta) / \sum_k \exp(x_{ik}\beta) \cdot f(\beta|\theta) d\beta$$

For the purpose of estimation of the parameters via simulated maximum likelihood, such integral is approximated numerically by means of simulation methods (Train 2003).

Different forms of welfare measure can be calculated from choice experiment model information: compensating variation [the amount of money that can be taken away from (or returned to) an individual after a specified change in the composition of the good and still leave the individual at his/her original utility position (the status quo utility position)]; and the change in admission price that would result in $X\%$ of consumers attending a particular type of production. The compensating variation is equivalent to the consumer surplus that a consumer would receive if the good, in this case, the live theatre production, was changed, assuming no income effect.

4 The context of the research and the research method

4.1 The South African National Arts Festival

Founded in 1974, the South African National Arts Festival (NAF) takes place in the small Eastern Cape Province town of Grahamstown over 10 days each June/July. Although the festival was originally envisaged as a celebration of English culture, it quickly diversified to include African and other international performers and art forms. Since the end of apartheid in 1994, the festival has become decidedly more African in focus, showcasing South African and other African artists, while still including traditionally European art forms such as ballet, opera and classical music. NAF organisers now claim that it is the biggest and most diverse festival in Africa, which may well be the case.

The NAF consists of Main shows, which are selected by the organisers and heavily sponsored, and a more experimental Fringe programme, which is open to all and run on a for-profit basis. Show types include music (classical, jazz, pop), theatre (professional, semi-professional and student), dance (including ballet, African dancing, physical theatre and other modern dance), cabaret and musical theatre, comedy, poetry, fine art, street theatre and an extensive craft market. In 2008, 176 events (389 performances) were offered on the Main programme and 353 (1,657 performances) on the Fringe. Just over 38,000 tickets were sold and organisers estimated about 147,500 attendees.

In the new South Africa, festival goers have slowly become more diverse, with the percentage of festival goers with their home-language as English (mostly white people) falling steadily from around 85% in 1987 to about 64% 2006 (Antrobus and Snowball 2006). However, festival goers do still represent a fairly high income and education group in comparison to most South Africans.

4.2 Study design: experimental design and data collection

A good experimental design is one that is orthogonal, balanced and efficient. Efficiency is a measure of the goodness-of-fit of the experimental design, based on the information matrix.

The theatre study has six attributes: (1) cast (actors: 3 levels: professional, semi-professional, amateur), (2) director/producer (2 levels: famous, unknown), (3) genre (period: 3 levels: classic, modern known playwright, modern unknown playwright), (4) context (4 levels: South Africa, other African, developing country, west), (5) production type (3 levels: comedy, drama, musical), and (6) ticket price (6 levels). Some show characteristics and levels, such as the cast status, production type and ticket prices, are given in the NAF programme and are thus familiar categories to attendees. Other informations such as the context and period of the show and the number of previous festivals at which the director/producer has had a show are also available in the programme. The dependent variable is the choice of a particular combination of the attributes (from two alternatives) that each respondent makes.

A minimum (saturated) design would comprise 16 choice alternatives, whilst a full factorial design would comprise 1,296 choice alternatives ($=3^3 * 2 * 4 * 6$). A reasonable design size, less than the full factorial, could have 72 or 144 alternatives.¹ A search process was used to derive an optimal design for the experiment based on D-efficiency,² which is a measure of the goodness-of-fit of the experimental design, based on the information matrix $X'X$. A 'D-efficiency' measure was calculated for a randomly selected design in the 72 choice alternatives. A cyclic search process was then implemented that dropped a level and added a new randomly selected level from the full factorial, to see if it improved D-efficiency. The search extended over 1,000 iterations to identify the design set which maximised D-efficiency, in terms of a design set (i.e. a mix of factor levels for the 6 factors) of 72 choice cards. The optimal choice set had a 'D-efficiency' value of 3.910402, with a D-error of 0.255728.

The sample comprised 483 respondents attending one or more events at the NAF, Grahamstown, in July 2008. Data were collected using face-to-face interviews and carefully designed self-completion questionnaires.³ Each respondent was presented with four different choice cards. Each choice card comprised two alternative bundles of attributes, and the respondent was asked which bundle s/he preferred. It was not possible to specify a status quo or current situation position since each respondent was attending different events; and at the time of the survey may not have attended the events, or even booked some of the events s/he planned to attend.

In order to target festival goers who attended live theatre, data were collected at a sample of 38 live theatre shows over the course of the festival. The shows selected were from as many different genres and venues to get as representative a sample of festival attendees as possible. Self-completion questionnaires were placed on theatre seats at the selected shows and interviews were conducted with those attending before the show, during the interval and afterwards using convenience sampling. Respondents were mainly English speaking (71%) and South African (94%). Given the sensitivity of the race issue in South Africa, self-completion questionnaires did not collect data on ethnic origin. However, it can safely be assumed that English first language speakers were mostly white people. While NAF audiences have slowly become more racially diverse, attendance at ticketed shows, especially theatre, is still mostly by white people who have relatively higher income levels. As found in previous studies (Antrobus and Snowball 2006), audiences were young, 41% being between 18 and 25 years old (not surprising in a university town) and had a slightly higher percentage of females (58%) than males.

5 Results and analysis

The results of the basic conditional logit (CL) model are reported in columns 1 and 2 of Table 1. The coefficients can be interpreted as the marginal utility for a unit change in that particular attribute. All the coefficients are statistically significant, except for shows by a 'modern' (defined as after 1900), known playwright, shows with an African context other than South Africa, and drama productions.

Table 1 Effect of show attributes and socio-demographic variables on choice of theatre production

| | Conditional logit | | CL with interactions | | Mixed logit | |
|---|-------------------|---------|----------------------|---------|-------------|---------|
| | Coefficient | St. Er. | Coefficient | St. Er. | Coefficient | St. Er. |
| Cast: professional | ***0.35336 | 0.06756 | ***0.36818 | 0.07043 | ***0.57014 | 0.14979 |
| S.D. cast: professional | | | | | ***0.74807 | 0.27194 |
| Cast: semi-professional | ***0.29942 | 0.06770 | ***0.29865 | 0.07084 | ***0.52649 | 0.15084 |
| S.D. semi-professional | | | | | 0.12092 | 0.36761 |
| Director: famous | ***0.23669 | 0.04927 | ***0.24916 | 0.05157 | ***0.44208 | 0.11567 |
| S.D. Director: famous | | | | | 0.21755 | 0.37879 |
| “Classic” play by known playwright | ***-0.26172 | 0.07025 | -0.05306 | 0.10194 | -0.04268 | 0.19919 |
| S.D. “classic” play by known playwright | | | | | **0.95910 | 0.38974 |
| Modern play by known playwright | -0.03700 | 0.06796 | -0.02296 | 0.07101 | -0.01419 | 0.14043 |
| S.D. modern play by known playwright | | | | | 0.28429 | 0.53193 |
| Context: South African | ***0.46518 | 0.08007 | ***0.94609 | 0.19718 | ***1.55076 | 0.41603 |
| S.D. context: South African | | | | | 0.12104 | 0.65291 |
| Context: other African | 0.06460 | 0.08178 | ***0.54524 | 0.19683 | **0.89456 | 0.39935 |
| S.D. context: other African | | | | | 0.67688 | 0.53143 |
| Context: other developing country | *0.14309 | 0.08909 | ***0.61681 | 0.20390 | ***1.08042 | 0.40480 |
| S.D. context: other developing country | | | | | 0.04681 | 1.00636 |
| Type: comedy | ***0.36172 | 0.07068 | ***0.92633 | 0.18992 | ***1.75677 | 0.46771 |
| S.D. type: comedy | | | | | 0.66258 | 0.84180 |
| Type: drama | 0.07829 | 0.06958 | **0.46667 | 0.19112 | *0.86267 | 0.44934 |
| S.D. type: drama | | | | | **0.78081 | 0.37958 |
| Age * Comedy | | | ***-0.01809 | 0.00616 | ***-0.03749 | 0.01354 |
| Age * Drama | | | *-0.01069 | 0.00609 | -0.02195 | 0.01448 |
| Income * Classic | | | **0.00012 | 0.00005 | ***-0.00028 | 0.00010 |
| Income*Comedy | | | 0.00004 | 0.00006 | 0.00011 | 0.00013 |
| Income * Drama | | | -0.00002 | 0.00006 | 0.00002 | 0.00014 |
| Income * Western context | | | **0.14281 | 0.00005 | **0.00024 | 0.00011 |
| European Lang * Western context | | | **0.33842 | 0.20370 | *0.65428 | 0.40419 |
| Price | **0.00444 | 0.00187 | **0.00466 | 0.00195 | ***-0.01325 | 0.00443 |
| lnL | -1,250.217 | | -1,158.982 | | -1,133.923 | |
| Rsqr | 0.0576 | | 0.0669 | | 0.0871 | |
| Choices | 1,932 | | | | | |
| People | 483 | | | | | |

*** Statistically significant at 1% level; ** statistically significant at 5% level; * statistically significant at 10% level
S.D. standard deviation of the coefficient. If the *S.D.* in the mixed logit model is statistically significant, then this indicates that there is considerable heterogeneity or dispersion in the tastes or preferences amongst theatre goers for this attribute.

The coefficients have their expected a priori signs: utility increases if the show has professional or semi-professional actors compared to amateur actors. Utility also increases if the show is directed by a famous director [compared to the (excluded) base case of an unknown director]; and the sign on price is negative indicating that audiences wish to pay lower ticket prices *ceteris paribus*.

Other attributes cannot be assigned signs a priori. The context of the show [South Africa, other African country, other developing country, or 'western', meaning Europe and the USA], the period of work and fame of the playwright ['classic' (before 1900) by a known playwright, 'modern' (after 1900) by a known playwright, or 'modern' by an unknown playwright], and type of show [comedy, drama, musical] will increase or decrease utility according to the tastes of the theatre goer.

The results reveal that, in terms of genre, productions of playwrights deemed 'classic' reduce utility compared to more modern productions by unknown playwrights. Utility from productions of modern, known playwrights are not statistically significantly different from those of unknown playwrights. Utility increases for shows about South Africa compared to those with a 'western' context, as do those about other developing countries. Comedy shows also increase utility compared to the base case (musical), as do dramas although the latter is not statistically significant. The goodness-of-fit of the CL model is not high ($Rsq = 0.0576$).⁴

The CL model including interaction terms is reported in columns 3 and 4 of Table 1. It is clear that the inclusion of socio-economic interaction terms improves the goodness-of-fit of the model: $R^2 = 0.0669$. The interaction terms are socio-economic characteristics of respondents that are thought to influence the individual's choice of theatrical show. The interaction terms included in the model were respondent age * type of show; respondent income * genre ('classic'); income * type of show (comedy and drama); income * context ('western'); and language * context.

The coefficient for age * comedy show is negative and highly statistically significant, indicating that utility of comedy shows at the festival declines as age of the respondent increases. The coefficient on age * drama is also negative, indicating that utility declines with age for these types of shows, compared to the base case (shows with music).

The coefficient on income * classic genre is negative, indicating that as respondent income increases the utility gained from theatrical productions by playwrights in this genre (e.g. Shakespeare) decreases. The relationship between income and comedy productions is positive though not statistically significant, whilst that between income and drama is negative, but again not statistically significant. However, the relationship between income and shows with a 'western' context and between respondents with European languages and shows with a 'western' context are both positive and statistically significant, indicating that utility of 'western' shows increases with income and also if the respondent's main language is a European language (including Afrikaans).

The CL model assumes that all respondents have the same marginal utilities, and that all observed choices are independent. These two assumptions are difficult to justify for theatre audiences. First, there is significant heterogeneity amongst people attending National Arts Festival productions (e.g. in terms of income, age, ethnicity, etc.) which is likely to imply heterogeneity in tastes and hence differences in marginal utilities between theatre goers for the attributes of a theatrical production. Second, the sequence of four choices made by each theatre goer may not be independent of each other. A mixed logit (MXL) model can account for repeated choices of individuals and computes individual specific marginal utilities, generating a distribution of parameters across respondents. The marginal utility of a given respondent is a point of the distribution, and the average WTP is estimated using the mean of the distribution.

The mixed logit (MXL) model results, with interaction terms, are reported in columns 5 and 6 of Table 1. The MXL model provides a much better fit to the data than the two fixed parameter CL models. The MXL model allows for the panel structure of the data and correlation across choices, i.e. it allowed for correlation in the

error terms common to the responses of a given respondent. The MXL estimation was based on 100 Halton draws, and assumed a normal distribution of all attributes except price.

Most of the MXL coefficients are statistically significant, except for ‘classic’ shows by a known playwright, ‘modern’ shows by a known playwright, the interaction between income and comedy shows, and between income and drama shows. However, whilst ‘classic’ shows by a known playwright is negative but not statistically significant across all theatre goers in the MXL model, it is negative and statistically significant when interacted with income. Perhaps contrary to expectations, productions by playwrights deemed to have a ‘classic’ genre clearly do not appear to appeal to NAF theatre goers with higher incomes.

A feature of the MXL model results are the statistical significance of the taste dispersion (St. Deviation) parameters for ‘professional cast’ and ‘drama’ shows, indicating that these coefficients do indeed vary in the theatre goer population. The statistical significance of the standard deviation on the coefficients indicates that variance in taste amongst audiences with respect to the cast (professional), and type of production (drama) is an important feature of theatre goer preferences. Theatre goers have heterogeneous preferences for these attributes. Diversity in these theatrical experiences seem important to theatre goers, perhaps providing talking points in comparing productions. There is more homogeneity in preferences, however, for the ‘director’, and ‘context’ of the production.

The estimated means and standard deviations of the coefficients provide information on the share of the theatre goers who place a positive value on the type of cast and type of show. For example, the distribution of the coefficient for shows with professional casts has a mean of 0.57014 and a standard deviation of 0.74807 (see Table 1), which implies that 78% of the distribution is above zero and 22% below. This suggests that a production with a professional cast is an inducement to 78% of theatre goers, and a negative factor for 22% who apparently prefer amateur casts. And in terms of type of show, drama appeals, in varying degrees, to 87% of theatre goers (compared to a musical), but is unappealing to 13% of patrons.

Table 2 reports the willingness-to-pay (WTP) value associated with each attribute, together with the standard error of each WTP value. The WTP values are derived by scaling the marginal utility of an attribute with the marginal utility of money. Most of the WTP values are statistically significant, at least at a 5% level. However, the standard errors are quite large, again reflecting the heterogeneity in theatre goer preferences with respect to these attributes. The results for the basic CL model (columns 1 and 2 in Table 2) indicate that the typical theatre goer is willing to pay an additional ZAR79 (South African Rands⁵) to see a professional cast rather than a show with an amateur cast. However, they are only willing to pay (ZAR79 – ZAR67 =) ZAR12 for a professional cast compared to a semi-professional cast.

Table 2 Willingness to pay for show attributes: CL and MXL models results

| | Conditional logit | | CL with interactions | | Mixed logit | |
|------------------------------------|-------------------|---------|----------------------|---------|-------------|---------|
| | Mean WTP | St. Er. | Mean WTP | St. Er. | Mean WTP | St. Er. |
| Cast: professional | **79.52 | 38.41 | **78.93 | 37.96 | **43.02 | 18.38 |
| Cast: semi-professional | **67.38 | 33.16 | **64.02 | 31.63 | **39.73 | 16.78 |
| Director: famous | **53.26 | 24.70 | **53.41 | 24.61 | ***33.36 | 12.50 |
| “Classic” play by known playwright | **−58.59 | 29.84 | −11.37 | 22.53 | −3.22 | 15.04 |
| Modern play by known playwright | −8.32 | 15.71 | −4.92 | 15.39 | −1.07 | 10.62 |
| Context: South Africa | **104.68 | 45.69 | **202.82 | 91.67 | ***117.02 | 40.36 |
| Context: other African | 14.53 | 19.35 | *116.89 | 63.30 | **67.50 | 33.76 |
| Context: other developing country | 32.20 | 23.71 | *132.23 | 68.54 | **81.53 | 35.05 |

| | Conditional logit | | CL with interactions | | Mixed logit | |
|----------------------------------|-------------------|---------|----------------------|---------|-------------|---------|
| | Mean WTP | St. Er. | Mean WTP | St. Er. | Mean WTP | St. Er. |
| Type: comedy | **81.40 | 38.64 | **198.59 | 94.11 | ***132.57 | 49.28 |
| Type: drama | 17.61 | 17.53 | *100.04 | 59.36 | *65.10 | 38.29 |
| Age * Comedy | | | *-3.87 | 2.12 | ** -2.82 | 1.27 |
| Age * Drama | | | -2.29 | 1.65 | -1.65 | 1.20 |
| Income * Classic | | | *-0.0027 | 0.0015 | ** -0.0021 | 0.0009 |
| Income * Comedy | | | 0.0008 | 0.0015 | 0.0008 | 0.0010 |
| Income * Drama | | | -0.0005 | 0.0015 | 0.0001 | 0.0011 |
| Income: western context | | | *0.0031 | 0.0017 | *0.0018 | 0.0009 |
| European Lang. * Western context | | | 72.55 | 52.51 | 49.37 | 32.80 |

South African Rand, 2008 prices

The WTP values in Table 2 are derived from the coefficients in Table 1. For the conditional logit model, WTP = attribute coefficient from Table 1 divided by price coefficient in Table 1. For calculation of WTP in mixed logit models, see Train (2003)

*** Statistically significant mean WTP at 1% level; ** statistically significant mean WTP at 5% level; * statistically significant mean WTP at 10% level

The WTP values derived from the MXL model are much more ‘conservative’ than those derived from the CL with interaction terms model, for all the attributes. Theatre goers are willing to pay a premium to see productions with professional actors (ZAR 43.02) and semi-professional actors (ZAR 39.73) compared to amateur actors. For productions by ‘classic’ playwrights, whilst mean WTP is still negative (at ZAR -3.22) it is only slight so, and it is not statistically significant.

6 Conclusions

Many of the findings support the a priori expectation of what shapes demand for the performing arts based on the findings of other such studies. For example, the heterogeneity of preferences found supports the ‘cultural omnivore’ argument (Peterson 1992), which suggests that cultural consumers from higher social classes are more likely to consume a wide variety of genres, as opposed to Bourdieu’s (1984) theory that people of high social class consume only ‘high’ culture. The negative relationship between income and ‘classic’ genres also supports the omnivore thesis—high-income groups now not necessarily choosing traditional ‘high’ culture or classic productions.

There are, however, clear indications that socio-demographics can still determine taste to some extent. For example, the age of consumers does affect taste, our finding being that older people are less likely to choose comedy or drama than those in younger age groups. Respondents whose home language was not African (mostly white people) and who were from higher income groups were more likely to choose shows with a ‘western’ context. However, the basic CL model shows that, in general, the utility of the sample increased for shows with a South African or other African country context. This finding supports the current policy of the National Arts Festival organisers to include some western or European type productions, but to focus more on South African, African and other developing country works.

Colbert’s (2003) comments on the riskiness of live arts consumption are also supported: professional and semi-professional casts and better known directors (as an indication of quality) being more likely to be chosen. However, the effect was not found in the case of ‘classic’ period pieces (which might be argued to be better known) or known playwrights, neither of which had a statistically significant effect on choice. This is perhaps

because of the preference for African and developing world contexts, the majority of African playwrights being less well known.

Given the relatively low ticket prices (between about 40 and 120 South African Rands), the more conservative willingness to pay results derived from the MXL model are preferred. The willingness to pay estimates also supports the theory, indicating that patrons are willing to pay considerably more for shows with less risk (professional or semi-professional actors).

In conclusion, the article demonstrates that choice experiments can be effectively used to ‘unpack’ some of the determinants of demand for live theatre, disaggregating some of the quality indicators. The findings have useful implications for both event organisers and policy makers. The findings of this research confirm much of the theory of what determines demand in the live performing arts and support the current pro-African and developing country stance of the festival organisers.

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