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Valuing Intangible Cultural Heritage in Developing Countries

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Abstract: The disappearance of intangible cultural heritages (ICHs) together with associated symbols and meanings in sub-Saharan Africa (SSA) undermines 2003 UN Convention for Safeguarding of the Intangible Cultural Heritage. To contribute to reversing this trend, the present study estimates the economic value of preserving traditional kente weaving and interpretation of kente symbols by establishing national demonstration centers in Ghana. Contingent valuation (CV) surveys of both the public and kente weavers are used to elicit their preferences for these national centers. As CV surveys of cultural heritage have often been criticized for lacking both policy and payment consequentiality, we have used a specific preservation measure and a non-voluntary payment vehicle to make the decision context realistic and consequential. Households show significant, positive mean willingness-to-pay (WTP) for establishing national centers to preserve both the kente weaving technique and the interpretation of kente symbols. Furthermore, we find no distance decay in WTP for preservation of this ICH; indicating that people have strong preferences for preserving this ICH independent of how far they live from the center of kente weaving activities. This leads to larger aggregated benefits of preservation compared to built cultural heritage and local environmental goods, for example, where strong distance decay occurs in many cases. This makes the net present value of centers for demonstration of kente weaving and interpretation of kente symbols positive and an economically worthwhile investment. The policy implication of these results is that higher investments in preserving ICHs can be justified not only from a cultural heritage perspective, but also from an economic point of view.

Keywords: intangible cultural heritage; contingent valuation; cost–benefit analysis; symbols

JEL Classification: Z11; Z18

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1. Introduction

The 2003 UN Convention for Safeguarding of the Intangible Cultural Heritage established the fund for preservation of ICH, and defines ICH as "the practices, representations, expressions, knowledge, skills—as well as the instruments, objects, artefacts and cultural spaces associated therewith" [1]. The domains of ICH that were covered under the ICH Convention are oral traditions and expressions; performing arts; social practices, rituals, and festive events; knowledge and practices concerning nature and the universe; and traditional craftsmanship. The 2003 UNESCO Convention notes the importance of ICHs as the mainspring of cultural diversity and sustainable development and recognizes the threats of globalization and social transformation for ICHs. The state parties are called upon to promote participation of communities, groups, and individuals that create, maintain, and transmit ICHs in their management.

Heritage is widely seen as a capital asset and this places heritage in the same bracket as human capital, manufactured capital, and social capital [2], which are all instrumental for sustainable development. This makes it imperative to use economic analysis to inform both private and public investment decisions, as well as to maximize the return on cultural heritage preservation. Because of the difficulties in estimating economic benefits of non-market goods such as preservation of cultural heritage, the economic benefits of cultural heritage have been assessed using revealed preference (RP) and stated preference (SP) methods; see [2,3] for reviews of applications of these valuation methods to historic buildings, monuments, and artifacts. These reviews show that predominantly SP methods—i.e., contingent valuation (CV) and discrete choice experiments (DCE)—have been applied, and mostly to tangible rather than intangible cultural heritage. Reference [4] also underscores the scarcity of valuation studies of ICH.

Among the few existing valuation studies of ICH, reference [5] uses CV to estimate the benefits of the "Intangible Cultural Heritage of Hall" in Jeonju in South Korea. In this study, close to half of the respondents (46.7%) indicate that they are not willing to pay the stated amount of costs in a dichotomous choice CV survey. The total annual economic benefit of the Intangible Cultural Heritage Hall in Jeonju is estimated to be 80.5 million USD. In another valuation of ICH, reference [6] estimates the value of customs associated with reindeer husbandry and the way of life in Lapland in Northern Sweden. Reference [7] undertakes CV studies of two art festivals in South Africa and finds that a higher percentage of respondents from low-income areas are willing to pay something to prevent downsizing the festivals although people from these low-income areas are less likely to attend these festivals. The amount that respondents are willing to pay are lower in low-income areas. Reference [8] estimates the value of a classical music festival in Spain from a CV study of tourists' and residents' willingness-to-pay (WTP) for a season ticket to attend festival concerts. Here, respondents were also asked to state how certain they were about paying the amount they stated. The results showed an inverse relationship between WTP and certainty scores. The amounts tourists are willing to pay are higher than the amount residents are willing to pay at lower levels of the certainty score. However, as the certainty score exceeds a specified threshold, WTP of the residents is higher than the WTP of the tourists.

The application of SP methods to cultural heritage, and especially ICH, raises important questions such as the scope of cultural heritage that should be valued. Reference [3] argues that because of the uniqueness and irreversibility of cultural heritage, the scope of cultural heritage must transcend the valuations of present generations to include the preferences of future generations as well as the circumstances surrounding these valuations. There is also the question of contiguous cultural heritage being valued higher than an equivalent number of individual cultural heritages, and whether the preferences for these cultural heritages change with physical and social distance. On the interrelationship between contiguous goods and values of equivalent independent goods, reference [9] notes that when evaluating environmental projects, a policy agenda may alter resources that households allocate to corresponding services as the relative scarcity between goods changes. This interdependency is known when valuing public goods and the conclusion is that failure to account for this interdependency could bias the outcome of cost–benefit analyses (CBAs) of preservation projects. One direct implication of this issue of interdependence for economic analysis of ICHs is the observation of [10] that the definition of ICHs in [1] does not include symbols and meanings. Meanwhile, reference [11] questions how the overlapping of symbols and meanings of ICH can provide perspectives to inform management of ICHs. Specifically, the preservation measures that isolate some of the elements cannot preserve ICHs properly without adverse impact on the cultural environments from which the ICHs originate.

In addition to the scope of the scenario used in the elicitation of human preferences, the application of SP methods to value ICHs raises questions regarding policy and payment consequentiality. This is as result of the hypothetical scenarios presented for preference

elicitation in SP surveys as well as the intangible nature of ICHs. In the context of SP, policy consequentiality refers to situations when respondents believe that the results of SP surveys influence a policy. Payment consequentiality describes the situation when respondents perceive that they will be required to pay the amounts they state in SP surveys [12]. On both accounts, consequential surveys provide incentives for individuals to reveal their 'true' preferences and reduce hypothetical bias, and [13] finds WTP to be a function of the degree of consequentiality. Due to the intangible nature of ICHs, they are likely to cause hypothetical biases in SP surveys, and thus it is instrumental to construct valuation scenarios with a high degree of policy and payment consequentiality.

The present study contributes to economic analyses and management of ICHs by deepening our understanding of what determines the social appraisal and valuation of ICHs in several ways. First, the paper estimates WTP for the preservation of kente weaving and kente symbols of Ghana among a heterogeneous sample of households that cuts through different socio-economic groups. Secondly, the paper estimates willingness-to accept (WTA) compensation for demonstrating kente weaving and the interpretation of kente symbols among kente weavers in Ghana. Thirdly, the paper assesses the presence of distance decay in preferences for ICHs using the preservation of kente weaving and interpretation of kente symbols as a case study. This is especially interesting given the context of competing claims of sources of origin of kente weaving in Ghana. Furthermore, the paper also contributes methodologically to the few SP surveys of preserving ICH by using the establishment of national centers for demonstrating kente weaving and interpreting kente symbols to increase policy and payment consequentiality and minimize hypothetical bias. This is also in support of article 16 of 2003 UNESCO Convention that require state parties to involve communities, groups, and individuals that create, maintain, and transmit ICHs; in ICH management. In this way, kente weaving is framed as an experience good in which visitors to the national kente centers experience kente weaving and learn to understand kente symbols. Finally, the present study adopts WTP and WTA measures as indicative values of benefits and costs to undertake social appraisal of establishing these national centers in all districts of Ghana.

The results from the CV survey show that there is significant support for the use of national centers for preserving kente weaving and symbols in Ghana. More than 60% of the respondents are certain they would visit these national centers. The benefits in term of mean WTP per household to establish the centers is 28 GHS (approximately 5 USD) per year, while the costs in terms of mean WTA compensation for working in these centers is 424 GHS (approximately 75 USD) per month per kente weaver. These welfare measures were used in a cost–benefit analysis of establishing the national centers, and the results show the overall social benefits to exceed the costs. Thus, the net present value (NPV) of establishing national centers in all the districts of Ghana to demonstrate kente weaving and interpret kente symbols is 4.6 billion GHS (approximately 0.82 billion USD).

The rest of the paper is organized as follows: Section 2 describes kente weaving in Ghana, the study areas, sampling methods and the survey questionnaires used. Section 3 describes the theory behind SP surveys while the survey results are presented and discussed in Section 4. Section 5 discusses the results and concludes the paper with recommendations for management of ICH and further research.

2. Material and Methods

2.1. Kente Weaving in Ghana

Kente is a traditional hand-loom-woven designer cloth that is only found in Ghana and closely linked with royalty [14,15]. Despite this association with royalty, kente is now used by all social classes [16]. Kente is used for both its beauty and symbolic significance [16]. There are more than 300 different kente designs and each has its name and meaning [16]. The names and meanings are derived from historical events, individual achievements, proverbs, philosophical concepts, oral literature, moral values and codes of conduct, among others [17]. Reference [15] provides one of the symbolic meanings of Ashanti kente to be '*Eti*

kro nko agyina', which literally means "it takes more than two heads to form a committee". This underscores the importance of collective decision making. Reference [14] also provides one of the symbolic meanings of Ewe kente as '*Fiawoyome*' and this literally means the chief's retinue of advisors. This signifies security, accomplishment, survival, and continuity of society. In addition to these symbolic representations in kente, the color of kente cloth carries a symbolic meaning with yellow being associated with royalty and wealth, and blue signifying peace and harmony. Both the use and symbolic meanings of kente have been found to be the cause of widespread use of kente [18]. In Ghana, kente is widely used for all kinds of occasions including religious occasions. It is also widely used as a stole and in designs in ordinary clothing. Kente has found strong appeal among the African Americans. Furthermore, an increasing number of international clothing brands use kente designs. Kente has also been adopted as the Ghanaian national dress, and the Government of Ghana presented kente cloth to UN in 1960 [16].

Reference [16] traces kente weaving to the weaving traditions of early West African Kingdoms between 300 AD and 1600 AD and this has been supported by archeological excavations which have produced weaving instruments in other parts of Africa. The attribution of kente weaving skills to spider-webs supports a widespread notion among people across West Africa who associate spinning skills to the spider, called Ananse in the Akan language [19]. In Ghana, three different accounts exist on the origin of the kente cloth [15]. The first account is that hunters from Bonwire observed the weaving of spider-webs. The second account attributes kente weaving in Ghana to an observation made by an Ashanti Chief of another Chief wearing kente in northern Ghana and this weaving is the origin of kente weaving in Ashanti Kingdom of Ghana. Reference [14] presents the final account which traces kente weaving among the Ewes (Ghana, Togo, and Benin) to originate from their ancestral home. All these three accounts trace kente weaving to observations made on the weaving of spider-webs. The main towns for Ashanti kente are Adanwomase and Bonwire. However, reference [16] identifies Bonwire as the leading kente weaving town in Ghana. Among the Ewes of Ghana, the kente weaving is common in the north of Anlo, Some, and Keta areas. It is also very common especially in the Agotime-Kpetoe traditional area [14]. The third distinct type of hand-woven cloth is among the traditional areas of Northern Ghana.

These three accounts on the origin of kente weaving relates to the three main kente cloths in Ghana. These are kente cloth associated with Ashantis in the middle belt of Ghana; Ewes of Ghana, Togo, and Benin; and people of the northern belt of Ghana. However, the tools and processes used in kente weaving among Ashantis and Ewes are similar [14]. Differences do exist among these three kente cloths. For instance, reference [20] observes that the kente woven among the Ashantis is known for its iconic colors of red, yellow, green, and black in addition to the use of geometric symbols. However, the kente cloth woven among the Ewes favor colors that are mute. Kente cloth has stood the test of time against the external influence of machine-woven textiles from Africa. Except for some imitations of kente cloth on the market, the technology for the weaving of kente cloth has largely remained hand-woven and has remained untouched (see [21,22]). Kente is still being woven by small-scale enterprises, mostly owner-operated (see the descriptive statistics in the next section). Kente has been included among the African traditional prints to possess distinct African characteristics for future models of African print design and production [21].

The traditional authorities of two kente weaving towns of Agotime-Kpetoe and Bonwire have instituted annual kente festivals in honor of kente. The Agotime Kente festival, also known in Ewe as *Agbamevorza*, started in 1996 and the Bonwire Kente festival started in 1998 [23]. The aim of the Agotime Kente festival is to preserve the cultural and aesthetic values of the kente cloth, display uses of kente cloth and expose innovations and techniques in kente industry among other objectives to address the developmental needs of the Agotime traditional area (available online: http://ewekente.com/home, accessed on

16 December 2018). Bonwire Kente festival is celebrated to commemorate the invention of kente.

There is no formal written history of kente cloth and because of the knowledge of origin of kente is transmitted orally from one generation to another [15]. According to [15], there are no formal educational institutions that train people in kente weaving. However, the weavers of kente possess an in-depth knowledge on the kente cloth. These weavers are over the age of 60 years and illiterate [15]. In recent years, some elementary and vocational schools employ professional kente weavers to teach kente weaving in these schools [15].

Reference [15] notes the presence of imitations of kente cloth on the market and these imitations comprise machine-print kente cloth which are mass produced on conveyor belts and machine-woven kente cloth which are produced from modern industrial broad-loom machines. Reference [18] estimates that synthetic kente designs from Asia cost 39% of the value of authentic kente designs from Ghana. Furthermore, reference [15] finds that imitated kente cloths do possess the same traditional historical significance that comes with the actual hand-woven kente cloths. Interviews conducted in Ghana and discussed in [15] show that most respondents believe that the increase in imitation of kente will lead to defamation of an important treasure that has lasted for generations. Similarly, the kente symbols are also under threat of extinction as there are only about 2% of the population that understand the meaning of a single kente pattern [15].

2.2. Study Areas and Sampling Methods

The data used in this study were obtained from contingent valuation (CV) surveys in which willingness-to-pay (WTP) questions and willingness-to-accept (WTA) compensation questions were posed to samples drawn from the public (i.e., WTP CV surveys) and from kente weavers (i.e., WTA CV surveys), respectively. The WTP CV surveys were conducted in Bonwire and Kumasi in Ashanti Region, Accra in Greater Accra Region and Ho and Agotime Kpetoe of the Volta Region of Ghana (see Figure 1 for the location of the study areas). Bonwire and Agotime-Kpetoe were selected since both towns are associated with kente weaving and we would like to test whether WTP values elicited from these towns are different from those elicited from other parts of Ghana. We interviewed about 50 respondents from each of these two small, kente weaving towns, and 200 respondents from each of the nearby cities of Ho and Kumasi. Furthermore, in order to test for distance decay in WTP, we interviewed 200 respondents from Accra. In total, we had an overall sample of 700 respondents in the WTP CV surveys. The WTP and WTA CV surveys were conducted in March and April 2018.

The sample consists of users and non-users of kente cloth. For the first step, the metropolises were purposively sampled from each of the three regions and the three metropolises are Accra, Kumasi, and Ho. In the second step, convenience samples in suburbs in these metropolitan areas were selected to represent low-, middle-, and high-income areas. For Accra, these locations were East Legon, Airport Residential Area, Osu, and James Town representing the three different income groups. For Kumasi, the locations we sampled from include Maxima, Atonsu, Bomso, KNUST, and Ayigra. For Ho, we sampled from Sokode, Bankoe, Dome, and Agbogame. Like the sampling above, the selection was based on the three income groups to ensure representation across different socio-economic groups in the cities. Again, key informants such as representatives from local government authorities and other experts' opinions were included.

Figure 1. Map of Ghana showing study areas (i.e., cities and kente weaving towns). Reprinted from Ref. [23]. The red circles on the map indicate areas where the surveys were conducted. North is toward the top of the image, and Ghana extends 458 km NNE–SSW and 297 km ESE–WNW.

In the WTP CV surveys, we first asked respondents whether they have kente or whether parts of their existing clothing are made of kente designs. We also asked how frequently the respondents use kente cloth, and whether they have observed kente weaving. We assessed the perceived knowledge that the respondents had about kente weaving and kente symbols. In addition, we assess the perceived threats to kente weaving and interpretations of kente symbols. Similarly, we asked respondents for their opinions on the responsibility for the promotion of kente weaving and public understanding of kente symbols as well as the preservation of kente weaving and kente symbols. After the collection of general information about kente and kente symbols, we elicited the preferences of the respondents on the preservation of kente weaving and symbols.

We used payment cards for the elicitation of WTP. The CV scenario entails the use of national centers for demonstration of kente weaving and for interpretation of kente symbols. These national centers are to be established in all districts throughout the country. After the respondents stated their WTP, we asked those who indicated positive WTP to divide the amount they are willing to pay into three categories of WTP: (i) demonstration

of kente weaving only; (ii) WTP for interpretation of kente symbols only; and (iii) other aspects of the kente that respondents would want to preserve. We asked the respondents stating zero WTP to provide reasons for their responses. We then asked the respondents whether they would visit the kente national centers if they were established. The final part of the survey collected general information about the respondents including age, gender, education, whether a relative is involved in kente business, household size, the extent to which the respondents are working and personal and household income.

In addition to the WTP CV surveys, we conducted WTA CV surveys among samples of kente weavers drawn from Agotime Kpetoe and Bonwire. This is in addition to the WTP CV surveys conducted in these towns. However, we focused on kente weaving in the WTA surveys to assess WTA among kente weavers. We interviewed 200 kente weavers from each of these two kente weaving towns following a similar sampling protocol to the one adopted in the WTP CV surveys. We started the WTA CV surveys by asking the weavers about how they learned kente weaving, how many hours they weave kente within a normal week, and how large part of their total personal income the income from kente weaving constituted. Like in the WTP surveys, we also asked what they perceived as the threats to kente weaving and interpretations of kente symbols, as well as their opinions about who was responsible for the promotion of kente weaving and public understanding of kente symbols and the preservation of kente weaving and kente symbols. We also collected other data on kente weaving such as forms of ownership of kente enterprises, quantity of kente woven in a typical day, sales from kente, marketing of kente, and their perceptions of the profitability of kente weaving. The WTA question was framed as a compensation for demonstration of kente weaving and interpretation of kente symbols at the national centers to be established throughout the country. The compensation was to be received monthly. We explored reasons for zero WTAs and WTAs above the maximum level on the payment card. We also assessed the perceptions of the weavers on whether the national centers will achieve their intended purposes as well as whether the weavers believe that people will visit these national centers. In the final section, we collected data on their socio-economic characteristics; including age, gender, education, hometown, whether other relatives engaged in kente business, household size, and their personal and household incomes.

3. Theory and Estimation

The preservation of ICHs benefits the public. However, in the absence of a market and market prices to estimate the benefits of the preservation of kente weaving and kente symbols, we adopted the CV method to estimate the benefits and costs of preserving ICHs for economic analysis. SP methods have been used extensively to value non-market goods and services including tangible cultural heritage (see [2]). The SP methods rely on the theory of consumer behaviour. One main advantage of SP is that they allow one to estimate both use and non-use values. Based on welfare theory the benefits from the preservation of kente weaving and symbols, measured as households' WTP can be stated as

$$v\left(p, q^1, y - WTP\right) = v\left(p, q^0, y\right) \quad (1)$$

where $v\ ()$ is the indirect utility function, y denotes income of the household, q^0 and q^1 refer to two different levels of preservation of kente weaving and symbols with q^1 being an improved quality of preservation; and WTP is their willingness-to-pay (WTP) to obtain q^1. Similarly, the cost of preserving kente weaving and symbols includes the costs of paying people employed and we estimate this cost of preservation of kente weaving and interpretation of kente symbols by eliciting the willingness-to-accept (WTA) compensation among the weavers to provide q^1. We can then formally derive the WTA as

$$v\left(p, q^0, y + WTA\right) = v\left(p, q^1, y\right) \quad (2)$$

The notations are already explained in Equation (1).

The estimated WTP and WTA from Equations (1) and (2) were used in conducting a social appraisal of the preservation of kente weaving. In this cost–benefit analysis (CBA), we adopted the net present value (NPV) to assess the viability of preservation of kente weaving and symbols. The NPV is the aggregated, discounted stream of annual social benefits and costs of establishing the national centers to preserve kente weaving and symbols over the lifetime or time horizon (T) of the national centers; specified as

$$NPV = \sum_{t=0}^{t=T} \frac{(b_t - c_t)^t}{(1+r)^t} \tag{3}$$

where b_t is the social benefits of preserving kente weaving in year t (with estimates from the WTP CV surveys), c_t refers to the social costs of preserving kente weaving in year t and r is the social discount rate. The social costs were estimated partly from the WTA CV surveys, and partly from prior studies. The subscript t denotes the year.

Furthermore, we are interested in uncovering the factors that affect the WTP and WTA compensation. For this, we conduct probit and interval regressions. As a limited number of bids can be presented on a payment card, we use interval estimation by assuming that respondents' WTP is located between the amount (bid) the respondent picks from the payment card (i.e., t_k) and the next (higher) amount on the payment card (i.e., t_{k+1}). Therefore, the probability that a respondent picks this amount is the probability that the WTP of this respondent is between t_k and t_{k+1}. This probability is given by [24], as

$$\Pr(\text{choose } t_k) = \Phi((t_{k+1} - \mu)/\sigma) - \Phi((t_k - \mu)/\sigma) \tag{4}$$

where $\Phi((t_{k+1} - \mu)/\sigma)$ is the standard normal cumulative distribution function (CDF) evaluated at $(t_{k+1} - \mu)/\sigma$. The corresponding log-likelihood function is given as

$$\ln L = \sum_{i=1}^{T} \ln(\Phi((t_{k+1,i} - \mu)/\sigma) - \Phi((t_{k,i} - \mu)/\sigma)) \tag{5}$$

where i denotes the ith individual.

4. Results

In this section, we present the results from the two CV surveys and the social appraisal of establishing kente centers. We first present the descriptive statistics of the respondents in the WTP survey as well as the weavers in the WTA survey (Tables 1 and 2, respectively); before moving on to present the results from Probit and interval regressions (Tables 3 and 4). Lastly, we use the results from the WTP and WTA CV surveys to perform a cost–benefit analysis of preserving kente and kente symbols.

Table 1. Descriptive statistics of the sample in the cities of Accra, Ho, and Kumasi; the kente weaving towns of Bonwire and Kpetoe; and overall for the whole sample of the general public.

Description	Accra		HO		Kumasi		Bonwire and Kpetoe		Kruskal–Wallis CHI SQ.		Whole Sample	
	Mean	S.E.	Mean	S.E.	Mean	S.E.	Mean	S.E.			Mean	S.E.
Age (years)	37.42	12.69	40.96	14.56	33.81	9.62	41.14	16.16	28.32	***	37.82	13.28
Proportion of respondents who are female	0.59	0.49	0.63	0.48	0.47	0.50	0.50	0.50	9.41	**	0.56	0.50
Proportion of respondents in fulltime employment	0.92	0.27	0.60	0.49	0.66	0.48	0.68	0.47	35.80	***	0.72	0.45
Proportion of respondents whose relatives weave kente	0.38	0.49	0.37	0.48	0.09	0.28	0.69	0.46	77.76	***	0.34	0.47
Total household size (number of people)	4.07	3.18	7.12	5.89	5.04	2.32	6.85	6.54	55.28	***	5.61	4.68
Number of household members under 18 years old	1.29	1.81	3.83	3.15	1.62	1.35	3.21	3.96	131.71	***	2.22	2.64
Proportions of respondents with above primary education	0.80	0.40	0.65	0.48	0.97	0.18	0.73	0.45	25.02	***	0.89	0.31
Have kente cloth (=1 if yes)	0.76	0.43	0.59	0.49	0.50	0.50	0.75	0.44	26.38	***	0.64	0.48
Parts of clothing made of kente (=1 if yes)	0.56	0.50	0.36	0.48	0.67	0.47	0.70	0.46	37.74	***	0.55	0.50
Never use kente cloth; proportion	0.22	0.41	0.31	0.47	0.13	0.34	0.17	0.38	11.12	**	0.21	0.41
Never see someone using kente cloth; proportion	0.38	0.49	0.22	0.42	0.12	0.32	0.06	0.24	30.24	***	0.21	0.41
Perceived knowledge of kente weaving	2.31	1.87	3.17	1.50	1.99	1.19	4.07	1.84	112.00	***	2.71	1.74
Perceived knowledge of kente symbols	2.80	1.90	3.23	1.52	2.71	1.34	4.08	1.74	48.83	***	3.08	1.68
Perception of lack of knowledge on kente threaten kente weaving	3.17	1.72	4.49	1.29	4.75	1.12	4.31	1.61	93.40	***	4.15	1.57
Perception that high price of kente is a threat to kente weaving	4.80	1.82	4.65	1.38	4.33	1.49	4.28	1.69	27.10	***	4.55	1.60
Perception that low use of kente is a threat to kente weaving	2.85	1.61	4.56	1.55	4.25	1.46	4.60	1.62	120.87	***	3.98	1.72
Perception on lack of knowledge of kente threaten kente symbols	3.76	1.57	4.61	1.24	5.25	1.09	4.58	1.42	108.73	***	4.54	1.44
Perception that high price of kente is a threat to kente symbols	4.68	1.52	4.04	1.53	3.07	1.81	3.64	1.65	86.08	***	3.89	1.74
Perception that low use of kente is a threat to kente symbols	3.19	1.43	3.96	1.60	3.40	1.88	3.92	1.60	27.07	***	3.57	1.67
Perception that government is responsible for promoting kente weaving	5.30	1.50	5.11	1.17	5.23	0.99	4.70	1.59	28.38	***	5.14	1.31
Perception of government being responsible for promoting understanding of kente symbols	5.13	1.44	4.71	1.36	5.23	1.06	4.27	1.56	46.16	***	4.92	1.37
Proportions of respondents with positive willingness-to-pay (WTP)	0.82	0.38	0.75	0.43	0.77	0.42	0.75	0.43	1.83		0.78	0.42
Unconditional mean WTP per year for weaving demonstration and interpretation of symbols	60.70	378.25	11.85	19.43	12.84	19.19	27.09	78.34	17.18	***	27.70	201.84
Conditional mean WTP per year for demonstration of kente weaving and interpretation of kente symbols	76.52	423.56	16.04	21.08	17.19	20.46	37.51	90.21	21.66	***	36.74	231.81
Mean WTP for weaving demonstration only	25.03	91.14	4.73	6.65	7.77	9.87	22.45	56.92	56.56	***	14.58	57.97
Mean WTP for symbol interpretation only	17.86	52.44	4.63	5.72	6.88	7.60	8.15	17.07	42.57	***	9.28	29.29

Table 1. *Cont.*

Description	Accra		HO		Kumasi		Bonwire and Kpetoe		Kruskal–Wallis		Whole Sample	
	Mean	S.E.	Mean	S.E.	Mean	S.E.	Mean	S.E.	CHI SQ.		Mean	S.E.
Mean WTP for other aspects of kente	53.96	366.13	4.97	6.17	8.92	7.83	7.60	16.72	53.59	***	19.06	188.89
Proportion of respondents who are certain to visit kente centers	0.76	0.43	0.76	0.43	0.30	0.46	0.81	0.39	98.86	***	0.64	0.48

Note: Willingness-to-pay (WTP) per year for 10 years; in Ghana cedi (GHS). 1 GHS = 0.22 USD and 0.53 PPP-USD (purchasing power parity(PPP)-corrected exchange rate); in the year of the survey (2018). All perception variables are measured on a Likert scale from 1 to 6, as the highest level of perception. *** indicates significance at 1% level; ** indicates significance at 5% level.

Table 2. Descriptive statistics of the samples of Kente weavers from Bonwire and Agotime Kpetoe, and overall for the whole sample. Willingness-to-accept (WTA) compensation; in Ghana cedi (GHS). 1 GHS = 0.22 USD and 0.53 PPP-USD (purchasing power parity(PPP)-corrected exchange rate); in the year of the survey (2018).

Descriptions	Bonwire		Agotime Kpetoe		*t*-Test		Whole Sample	
	Mean	S.E.	Mean	S.E.	T-Value		Mean	S.E.
Age (in years)	31.54	13.27	30.23	11.55	−0.76		30.93	12.49
Proportion of weavers who attain above primary education	0.76	0.43	0.85	0.36	1.63		0.80	0.40
Proportion of respondents in fulltime employment	0.82	0.38	0.43	0.50	−6.35	***	0.64	0.48
Proportion of respondent whose relatives engage in kente business	0.47	0.50	0.88	0.33	6.69	***	0.66	0.47
Total household size (number of people)	7.04	7.92	8.28	5.56	0.91		7.36	7.39
Number of household members under 18 years old	3.11	4.42	3.29	2.33	0.26		3.16	3.96
Number of years of experience in kente weaving	14.88	13.33	10.53	9.70	−2.69	**	12.84	11.94
Proportion of respondents who learn kente weaving through apprenticeship	0.31	0.47	0.28	0.45	−0.47		0.30	0.46
Proportion of respondents who weave kente at least five days in a week	0.95	0.23	0.61	0.49	−6.59	***	0.79	0.41
Proportion of weavers with kente income, i.e., at least 80% of personal income	0.65	0.48	0.39	0.49	−3.86	***	0.53	0.50
Perception that lack of knowledge on kente is threat to kente weaving	4.51	1.58	4.55	1.29	0.16		4.53	1.45
Perception that high price of kente is threat to kente weaving	3.76	1.80	4.77	1.39	4.48	***	4.23	1.70
Perception that low use of kente is a threat to kente weaving	5.27	1.00	4.65	1.57	−3.47	***	4.98	1.33
Perception that lack of knowledge on kente is threat to kente symbols	4.79	1.44	4.52	1.21	−1.47		4.66	1.34
Perception that high price of kente is threat to kente symbols	3.47	1.74	4.10	1.57	2.73	**	3.77	1.69
Perception that low use of kente is a threat to kente symbols	4.52	1.47	3.73	1.71	−3.57	***	4.15	1.63
Perception that government is responsible for promoting kente weaving	4.49	1.95	5.01	1.50	2.13	**	4.73	1.77
Perception that government is responsible for promoting kente symbols	4.25	1.88	4.58	1.53	1.37		4.40	1.73
Proportion of respondents who operate sole-ownership of kente business	0.71	0.45	0.86	0.35	2.56	**	0.78	0.41
Number of months engaged in kente weaving	10.59	2.46	7.30	3.71	−7.64	***	9.06	3.51
Average length of kente woven in a day	46.56	39.90	57.21	63.14	1.48		51.50	52.13

Table 2. *Cont.*

Descriptions	Bonwire		Agotime Kpetoe		*t*-Test		Whole Sample	
	Mean	S.E.	Mean	S.E.	T-Value		Mean	S.E.
Minimum monthly sales in GHS	505.85	466.48	473.60	511.34	−0.46		491.41	486.05
Average monthly sales in GHS	627.04	492.02	634.73	736.95	0.08		630.25	604.63
Maximum monthly sales in GHS	1372.47	1440.30	857.41	866.21	−2.91	***	1145.63	1245.02
Proportion of respondents who perceive kente weaving to be profitable	0.92	0.27	0.46	0.50	−8.31	***	0.71	0.46
Unconditional mean willingness-to-accept (WTA) compensation for demonstrating kente weaving per month	722.71	1047.15	44.77	145.24	−5.96	***	423.72	856.48
Conditional mean WTA for demonstrating kente weaving per month	750.24	1057.28	46.95	148.43	−5.97	***	441.84	870.09

Note: *** indicates significance at 1% level; ** indicates significance at 5% level.

Table 3. Probit and interval regressions of willingness-to-pay (WTP) of the general public to establish national centers for preservation of kente weaving and symbols.

Variables	**Probit**		**Interval Regression**	
Certain to visit national centers	5.614	**	6.813	**
	(2.378)		(2.734)	
Dummy variable for weaving towns	23.911	*	17.546	*
	(13.410)		(10.504)	
Dummy variable for Accra (i.e., distance_decay)	31.405	***	32.153	***
	(8.460)		(9.715)	
Dummy variable for respondents having kente cloth	3.337		6.429	**
	(2.575)		(3.204)	
High use of kente cloth	−1.744		−1.992	
	(2.641)		(3.374)	
Knowledge of kente weaving	0.201		2.554	
	(0.888)		(1.616)	
Perception that threat to symbols is the result of low knowledge	2.168	**	3.887	**
	(1.038)		(1.724)	
Perception that threats to weaving is the result of low knowledge	−0.516		−0.876	
	(1.223)		(1.928)	
Age of respondents	−0.117		−0.050	
	(0.108)		(0.163)	
Gender of respondent_ (female = 1)	1.335		−7.759	*
	(2.434)		(4.433)	
Respondents work fulltime	2.535		6.314	
	(2.471)		(4.171)	
Household size	0.069		0.151	
	(0.232)		(0.471)	
Respondents obtain above primary education	−0.459		7.419	
	(4.630)		(5.983)	
Constant	6.503		−16.358	
	(9.945)		(20.483)	
lnsigma				
weaving_town	1.563	***		
	(0.319)			
accra_dist_decay	1.502	***	0.718	**
	(0.217)		(0.308)	
_cons	3.014	***	3.782	***
	(0.104)		(0.234)	

Note: Coefficients with standard error in parenthesis. *, **, and *** denotes significant at the 10%, 5%, and 1% level.

Table 4. Probit and interval regressions of willingness-to-accept (WTA) compensation among weavers to demonstrate kente weaving at national centers.

Variables	**Probit**		**Interval Regression**	
Years of experience in weaving	0.011		3.685	*
	(0.012)		(1.990)	
Dummy variable for Bonwire	0.482		741.391	***
	(0.442)		(92.453)	
Perception that threat to symbols is the result of low knowledge	0.254	**	12.376	
	(0.120)		(13.638)	
Perception that threats to weaving is the result of low knowledge	−0.273	**	−23.307	
	(0.108)		(16.885)	
Dummy variable for working fulltime	1.033	**	−57.469	*
	(0.400)		(32.495)	
Household size	0.008		5.230	
	(0.022)		(5.084)	

Table 4. *Cont.*

Variables	Probit		Interval Regression	
Respondents obtain above primary education	0.202		115.563	***
	(0.399)		(41.589)	
Income proportion from kente is 80% and above	−1.027	**	118.128	***
	(0.468)		(39.219)	
Perception that low use of kente cloth poses threat to weaving	0.049		−66.063	***
	(0.158)		(15.857)	
Perception that low use of kente cloth poses threat symbols	0.047		−11.150	
	(0.135)		(14.866)	
Responsibility of general public to preserve kente weaving	−0.288	**	−32.926	***
	(0.144)		(10.901)	
Responsibility of government to preserve kente symbols.	0.201	**	−6.529	
	(0.100)		(13.683)	
Level of certainty that national centers will achieve intended purpose	1.219	**	51.546	*
	(0.485)		(29.532)	
Constant	−0.388		390.642	***
	(1.309)		(121.886)	
lnsigma				
Dummy variable for Bonwire			2.807	***
			(0.241)	
Constant			4.177	***
			(0.174)	

Note: Coefficients with standard error in parenthesis. *, **, and *** denotes significant at the 10%, 5%, and 1% level.

4.1. Descriptive Statistics of the Public

The descriptive statistics of the WTP CV sample of the public are presented in Table 1, which shows that we have heterogenous samples from two kente weaving towns (i.e., Bonwire and Agotime Kpetoe) and three cities (i.e., Accra, Ho, and Kumasi). The sample sizes of Bonwire and Agotime are smaller than for Accra, Ho, and Kumasi. We purposively selected one main city close to each of these two kente weaving towns. Kumasi is close to Bonwire and Ho is close to Agotime-Kpetoe. Furthermore, we drew samples from the capital Accra, to test for distance decay in WTP for preservation of ICHs. The Kruskal–Wallis test was conducted to statistically test the differences in the means of these variables in the towns/cities. We rejected the null hypotheses that the means of all these variables are the same. We therefore conclude that we have heterogenous samples from kente weaving towns and from the cities, which is in accordance with our aim of sampling towns/cities with different socio-economic backgrounds in Ghana.

The overall average age of the respondents is about 39 years, ranging from 34 years in Kumasi to 41 years in the two-kente weaving towns. Slightly more than half of the respondents from the general public are female. Overall, about 56% of the sample are female; ranging from 47% in Kumasi to 63% in Ho. More than 70% of the respondents are in fulltime employment. Kente weaving does not appear to be common, as about 34% of the sample knows of close relative who engage in kente weaving or its associated businesses. The average household size is 5.6, and the differences between rural and urban areas appear to be same as in the 2010 census [25]. About 40% of the households are under 18 years of age. Overall, more than 80% of the respondents have more than primary education. Thus, the respondents are relatively highly educated, but the percentage of respondents with above primary education varies from 65% for Ho to 97% for Kumasi.

The use of kente cloth appears high. More than 60% of the respondents indicate that they have kente cloth. As expected, this is higher in the kente weaving towns of Bonwire and Agotime Kpetoe as well as in Accra, and lower in Ho and Kumasi. One can also argue that kente cloth is used as designs in dressmaking in Ghana. This can be deduced from the fact that 55% of the respondents indicate that kente cloth is used as designs in existing

cloths that they own. This appears to be high in the two kente-weaving towns as well as in Kumasi but lower in Accra and Ho. Only about 20% of the respondents indicated that they have never used kente cloth; lowest for Kumasi and the two kente-weaving towns and highest for Ho. A similar percentage of the sample also indicated that they had never seen someone using kente cloth.

The perceived knowledge on both weaving of kente and meaning of kente symbols was assessed during the survey using a 1-to-6 Likert scale from "not knowledgeable at all" (1) to "very knowledgeable" (6). The responses show that, overall, the respondents perceive their knowledge of kente weaving to be below average. Their perceived knowledge of the meaning of kente symbols appears to be slightly better than the perceived knowledge of kente weaving. Not surprisingly, the perceived knowledge of kente weaving and meaning of kente symbols are highest among the respondents drawn from the two kente-weaving towns. The perceived knowledge levels are also high in Ho, but the respondents from Accra and Kumasi indicated lower knowledge levels of kente weaving and meanings of kente symbols. Similarly, the respondents perceive lack of knowledge of kente weaving and meaning of kente symbols to pose a threat to kente. The average Likert scores for perceived threats to kente weaving from lack of knowledge is 4.15, and this score is highest among respondents from Kumasi and lowest among the respondents from Accra. The perceived threat from the high price of kente is high, with an average Likert score of 4.55. The low usage of kente cloth is also perceived to pose a threat to kente weaving. The responses also indicate that these three factors pose a high threat to understanding of kente symbols. However, although the high price of kente is perceived to pose the greatest threat to kente weaving, lack of knowledge is perceived as the greatest threat to interpretation of kente symbols. The national government is perceived as being responsible for the promotion of kente weaving and interpretation of kente symbols. This confirms that the national centers established by the government is an appropriate context for the CV scenario. Furthermore, a large proportion of respondents are certain that they will visit the national centers for demonstrations of kente weaving and interpretation of kente symbols, if established. This further justifies the use of national centers for demonstrating kente weaving and interpretation of kente symbols that we adopted when designing the CV scenario. These results also indicate the relevance of using national centers for the elicitation of public preferences for ICH in general.

Results show that, overall, as many as 78% of the respondents state positive WTP with no statistically significant difference between the towns/cities in this regard. Among respondents stating zero WTP, the three main reasons for the zero WTP responses are that respondents cannot afford to pay, the preservation of kente weaving and interpretation of kente symbols are the responsibility of the government, and preserving other public goods are more important. The unconditional mean WTP for both demonstration of kente weaving and interpretation of kente symbols is 27.70 GHS annually for 10 years as an increased value-added-tax (VAT). This unconditional mean differs among the towns/cities from which the sample was drawn; highest (60.70 GHS per year) in the capital Accra and lowest in Ho. It is important to note that the unconditional mean WTP for the two kente-weaving towns of 27.09 GHS per year is higher than those for Kumasi and Ho. The conditional mean WTP for both demonstration of kente weaving and interpretation of kente symbols is 36.74 GHS per year and this varies significantly among the towns/cities. The highest conditional mean WTP is 76.52 GHS/year per year in Accra. The second highest is 37.51 GHS/year in the two kente-weaving towns Bonwire and Kpetoe. The lowest conditional mean WTPs are 17.19 GHS/year and 16.04 GHS/year for Kumasi and Ho, respectively.

In addition to eliciting the WTP for joint demonstration of kente weaving and interpretation of kente symbols, we also elicit preferences for each of these two elements of the CV scenarios. Under these scenarios, respondents were asked to divide their WTP for both demonstration of kente weaving and interpretation of kente symbols into three categories: (i) demonstration of kente weaving, (ii) interpretation of kente symbols, and (iii) other as-

pects of kente. The mean WTP for demonstration of kente weaving is 14.58 GHS/year and this constitutes about 52% of the unconditional mean WTP and 39% of the conditional mean WTP for both demonstration of kente weaving and interpreting of kente symbols. Furthermore, the mean WTP for demonstration of kente weaving varies among the towns/cities. The mean WTP for interpreting of kente symbols is 9.28 GHS/year. This represents 39% and 25% of unconditional and conditional mean WTP, respectively, for joint demonstration of kente weaving and interpretation of kente symbols; however, this varies across the towns/cities. The mean WTP for interpretation of kente symbols only differs significantly between the cities with the highest mean WTP (Accra and the two kente-weaving towns of Bonwire and Kpetoe) and the lowest (Ho). We allowed the respondents to state WTP for other aspects of kente weaving that they consider important to be preserved. The responses indicate that the mean WTP is 19.09 GHS for the whole sample. However, this mean WTP appears to be influenced by the extreme mean WTP in Accra.

4.2. Descriptive Statistics of Weavers from Bonwire and Agotime Kpetoe

The descriptive statistics of the sample of weavers interviewed are presented in Table 2. These descriptive statistics are to a large extent similar to previous studies of kente weavers [26,27]. The average age of the whole sample is 31 years, and this does not differ between Bonwire and Kpetoe. Compared to the mean age in the public sample presented in Table 1, we see that weavers are younger. All the kente weavers interviewed are male, as very few women engage in kente weaving in Ghana. About 80% of the whole sample attained education levels above primary education. In addition, more than 60% of the respondents have fulltime employment. The relatives of the respondents are more likely to engage in weaving of kente as 66% of the respondents indicate that their relatives also engage in kente weaving. The average household size is about 7; and this is 2 people more than the average household size of the country (see Table 1. Overall, the household size appears to be representative of the 2010 Census [25], in which average household size is higher in rural areas than in urban areas. Similarly, the average number of household members under 18 years of age is 3 and this is one person more than that reported for the country. The respondents have been weaving kente for a little over a decade. The proportion of the respondents who learn kente weaving under the apprenticeship is 30%. A high percentage of the respondents engage in kente weaving for at least five days a week and this supports the fact that most of the respondents have kente weaving as a fulltime occupation. However, only 50% of the respondents derive 80% or more of their personal income from kente weaving; indicating they have other jobs as well.

The perceptions of the kente weavers with regard to threats to kente weaving and their general understanding of kente symbols are assessed. On the threats of lack of knowledge to kente weaving, the mean Likert score is 4.53, and there is no statistically significant difference between Bonwire and Agotime Kpetoe. This means that weavers perceive the threats from lack of knowledge to kente weaving to be more serious than the perceptions of the public. The threats posed by the high price of kente to weaving is perceived to be above average with an average Likert score of 4.23. The threats of low use of kente cloth are perceived as higher with an average Likert score of almost 5. The threats of these three factors to the understanding of kente symbols are likewise perceived to be great with the least being the threats of the high price of kente. The responsibility for the preservation of both kente weaving and kente symbols is equally perceived to be high. The weaving of kente remains small enterprises as more than 70% of the weavers indicate that they run the kente weaving as sole-ownership enterprises. The weavers engage in kente weaving for approximately 9 months of the year. The average length of kente woven in a day is about 51 inches. The average monthly sales from kente weaving is 630 GHS, ranging from a minimum of 491 GHS to a maximum sale of 1146 GHS. More than 70% of weavers in the survey view kente weaving as a profitable venture. Most of the kente is sold in local markets in surrounding towns, and in larger cities.

We estimated the weavers' WTA compensation for demonstrating kente weaving and interpretation of kente symbols at the national centers to be 424 GHS per month. Without the zero WTAs, the average WTA increased slightly to 442 GHS per month. A common reason for stating zero WTA is the willingness among weavers to demonstrate kente weaving for free. However, the main reason for stating a positive WTA is to compensate for the lost incomes from demonstration of kente weaving. Almost all of the weavers interviewed were certain that the national kente centers would achieve its purpose. More than 95% of the kente weavers were certain that people would use the national centers and this was the same in the two kente-weaving towns. Thus, we can conclude that the choice of national centers for the elicitation of preferences for ICHs appears to be suitable among the kente weavers as well.

4.3. Regression Results

The regressions results are presented in this sub-section. We present the results from the Probit estimation of whether the respondents are willing to pay anything for the preservation of kente weaving and symbols or not. In addition, we present the results for the interval estimation of the amount that respondents were willing-to-pay using the interval estimation technique. For kente weavers, we presented the results for willingness-to-accept compensation for both Probit and interval estimation procedures.

The results for the Probit and interval regressions for the general public are presented in Table 3. The variance of the error term is assumed to depend on the dummy variable denoting the respondents who were interviewed in Accra. Therefore, the variance is given by $\text{var}[\varepsilon] = \sigma^2 \exp(\gamma' \text{Accra\_dist\_decay})$. From these results, we can identify the independent variables that are statistically significant. Since the knowledge of kente weaving is highly correlated with knowledge of kente symbols, we omit the knowledge of kente symbols from the independent variables. The probit results show that respondents who were certain that people will use the kente weaving centers, as well as those living in a kente weaving town, living in Accra, and having the perception that threat to symbols is the result of low knowledge all demonstrated an increased probability of having positive WTP. The interval regression shows that WTP increase with the same four variables. In addition, WTP increased significantly with having kente cloths and being female.

The result that respondents who are certain that people will use the kente weaving centers state higher WTP underscores the fact that the responses of respondents are determined by the extent to which they perceive these national centers to be used. Respondents from Accra have higher WTP values and this contradicts the distance decay hypothesis.

We now present the results for kente weavers. The probit and interval regressions of the WTA of the weavers is presented in Table 4. Since there were very few of the respondents who indicated zero WTA compensation, we only estimated the interval regression on condition that WTA is positive. Similar to the estimation procedure for WTP, the estimation of a WTA regression allows for multiplicative heteroscedasticity. However, in this case, the variance of the error term depends on the dummy variable denoting the respondents who were interviewed from Bonwire. Therefore, the variance is given by $\text{var}[\varepsilon] = \sigma^2 \exp(\gamma' \text{place\_dummy})$.

From the results in Table 4, we find from the interval regression that the number of years of kente weaving experience increases WTA. In addition, kente weavers from Bonwire on average reported a higher conditional WTA. However, kente weavers who work full time reported lower conditional WTA. Kente weavers with more than primary school education level state high conditional WTA. Respondents who derive more than 80% of household income from kente weaving stated higher conditional WTA. Moreover, weavers who perceived threat to kente weaving were from low use of kente cloth indicated lower conditional WTA. Furthermore, weavers who perceive that national centers for the preservation of kente weaving and its symbols would achieve its intended purpose stated higher conditional WTA.

4.4. Cost–Benefit Analyses of Preservation of Kente Weaving and Symbols

The results presented above clearly shows that respondents perceive national centers for the preservation of kente weaving and kente symbols to be effective. This is demonstrated by the high percentage of respondents who think that the visitations to these centers will be high. Thus, we can argue that the contingent valuation scenario we presented in the survey is consequential, and the WTP estimates can be used to estimate the social benefits in a CBA of establishing national centers for preserving kente weaving and symbols in Ghana. We assume that national centers will be established in all the 216 districts in Ghana. The cost of establishing each center is assumed to be USD 145,660. This figure is based on [28], that indicates that the investment costs of 22 projects in the textile sector in developing countries was about 3.2 million USD. Using the market exchange rate at the time of the study (2018), the total cost of establishing national centers in all the 216 districts is about 153 million GHS. We assume the annual operating cost in terms of weaving materials and other inputs for each center to be 20% of the investment cost. The labor costs are estimated from our CV survey of weavers in terms of their WTA compensation for demonstrating kente weaving and interpreting kente symbols, which was on average 423.72 GHS per month per weaver. Thus, the total annual operating cost for hiring 10 kente weavers per each national center is 10.9 million GHS. The future operating costs is assumed to increase by 10% per annum in real terms. The social benefit of establishment of the national centers is derived from the public's WTP to establish these centers. The population of Ghana is 28.3 million [29], with an assumed annual growth rate of 2.5% [30]. Using the population size and mean WTP per person per year, the annual benefits from the establishment of these national centers is estimated to be 784 million GHS. Based on the annual population growth rate, the annual benefit from the establishment of national centers is projected to grow at 2.5% in future years. This is a conservative figure. Furthermore, we follow [28], and assume a time horizon of 10 years. In addition, we assume a social discount rate of 10%. All values are in 2018-GHS.

Based on the above assumptions and estimates from the CV studies we performed, we compute the net present value (NPV) of the establishment of the 216 national centers for demonstration of kente weaving and interpretation of kente symbols. The NPV is the difference between the discounted total benefits less the discounted total costs for the 10-year time horizon. The NPV for establishing 216 national centers throughout Ghana for both demonstration of kente weaving and interpretation of kente symbols is 4.6 billion GHS. This means that the total discounted social benefits outweigh the total discounted social costs. The sensitivity analyses undertaken shows that the establishment of the national centers will remain a worthwhile investment if each of the assumptions change by 10% at a time. For instance, if the number of national centers increases by 10%, the NPV falls by less than 1%. In addition, if the number of weavers hired at centers increased by 10%, the NPV falls by about 0.2%. Furthermore, if mean WTP of households increases by 10%, the NPV increases by 10.9%. Similarly, if the weavers' mean WTA compensation increases by 10%, the NPV falls by 0.2%.

In addition, we computed and compared NPVs for the two components of the CV scenario (i.e., kente weaving and interpretation of kente symbols separately). The NPV for demonstration of kente weaving is 2.2 billion GHS during the 10-year time horizon of the project. This is about 50% less than NPV for kente weaving and interpretation of kente symbols discussed above. The NPV for the interpretation of kente symbols only is 1.3 billion GHS and this is 30% lower than the NPV of kente weaving and interpretation of kente symbols combined. Therefore, each of the two components of the CV scenario are worthwhile investments on their own. These results of higher benefits of preservation of kente cloth and its symbols relative to investment costs appear to support the conclusions by [28], for the textile industry, which showed the internal rate of return (IRR) on investments in the textile industry to be as high as 44% within the 10-year time horizon. Using longer time horizons, as both the physical and economic life of the centers will likely be more than 10 years, will make the conservation even more profitable.

5. Discussion and Conclusions

The irrelevance of material aspects of heritage in the definition of cultural heritage has provided convincing arguments for expansion of cultural heritage to include intangible cultural heritage [31]. The 2003 UNESCO Convention recognizes the importance of preservation of intangible cultural heritage (ICH) through the safeguarding of ICHs as part of cultural heritage. The value of ICHs is argued to focus on processes of transmission of knowledge and skills rather than on products. The intangible nature of ICHs raises concerns regarding payment and policy consequentiality of scenarios adopted in stated preference surveys. To mitigate these biases, we use the establishment of national centers for the demonstration of kente weaving and interpretations of kente symbols in our contingent valuation (CV) scenario. Having one center in each of the 216 districts in Ghana made the preservation plan look both fair and effective in preserving kente; providing respondents with the incentives to state their "true" willingness-to-pay (WTP). In the household survey, the average WTP for preserving weaving of kente and interpretation of kente symbols is 28.70 GHS (approximately 5 USD) per person per year. Using the gross domestic product (GDP) per capita of 2018, we estimate that this magnitude of WTP is equivalent to about 1.3% of GDP per capita. On average, respondents stated that about 60% and 40% of their WTP was for preserving the weaving technique and kente symbols, respectively. The average willingness-to-accept (WTA) compensation among kente weavers to demonstrate kente weaving and its symbols at these centers is 424 GHS (approximately 75 USD) per weaver per month.

The second objective of the present paper is to use the results from CV surveys to conduct a social appraisal of preserving kente weaving and kente symbols. For this, we conducted a cost–benefit Analysis (CBA) and calculated the net present value (NPV) of establishing 216 national centers; one for each district in Ghana, at 4.6 billion GHS (approximately 0.82 billion USD) for a 10-year time horizon. Following the CV results, we also calculated the NPV for demonstration of kente weaving to be 2.2 billion GHS whilst the NPV for interpretation of kente symbols is 1.3 billion GHS. These NPV estimates are about 50% and 30% less, respectively, than the NPV for kente weaving and interpretation of kente symbols combined. Thus, this ICH preservation is economically profitable, and joint preservation of kente and kente symbols is most profitable from society's point of view. This result is supported by [10], which points out one weakness of the UNESCO definition of ICHs to be the exclusion of meanings and symbols of ICHs; and [11], stating that preservation measures that isolate some of the elements cannot preserve ICHs properly without adverse impacts on the cultural environments from which the ICHs originate.

We explore socio-economic factors that can explain the variation in WTP and WTA. One interesting finding from this analysis is the absence of distance decay in WTP for preservation of kente in Ghana. Thus, individuals living far away from the kente weaving towns do not have lower WTP than those living in or close to these towns. Thus, aggregate WTP over all households in Ghana will be high, and explain the positive NPV found here. The absence of distance decay in WTP can be explained by the uniqueness and absence of substitutes for kente weaving. Another possible explanation is the migration of people from rural areas, where kente is usually woven, to urban areas, which can result in preferences for preservation of kente being similar in rural and urban areas of the country.

The policy implication of these results is that higher investments in preserving ICHs can be justified not only from a cultural heritage perspective, but also from an economic point of view. Similar stated preferences (SP) studies of other ICHs should be performed to map the preferences of both consumers and the suppliers of ICHs for CBA to become a more complete and useful decision support tool in the preservation and management of ICHs.

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