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### Estimating Recreation Benefits from Zambia's Side of Victoria Falls

Jane Kwenye

*University of Montana - Missoula*

Wayne A. Freimund

*University of Montana - Missoula*

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ESTIMATING THE ECONOMIC VALUE OF RECREATION BENEFITS  
FROM ZAMBIA'S SIDE OF VICTORIA FALLS  
PRESENTED  
BY  
JANE M.KWENYE





# BACKGROUND INFORMATION

- Falls located in Mosi-o-Tunya National Park.
- A UNESCO world heritage site.
- Managed by the National Heritage Conservation Commission (NHCC).
- One of Zambia's major tourist attractions.



# BACKGROUND INFORMATION

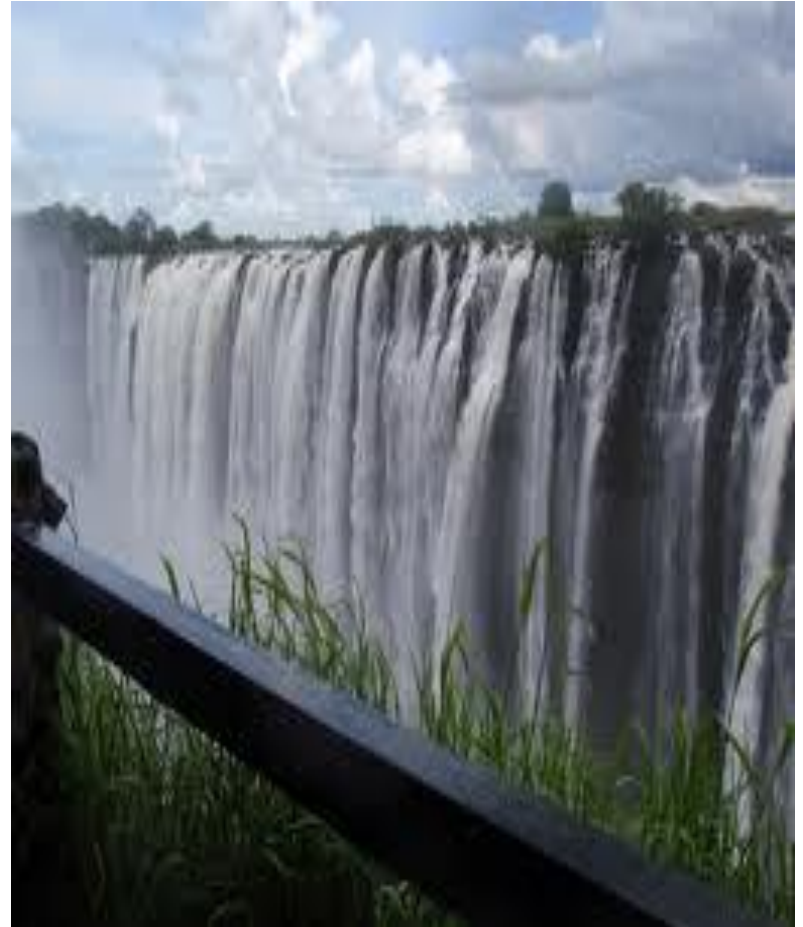
## CONT'D

- Livingstone, the town in which the Falls are, is Zambia's tourism capital city.
- Tourism is central to the city's economy.
- The Falls are the major contributor to tourism.



# Purpose of the Study

- Improved understanding of recreation benefits from Victoria Falls visitors that remains to be captured (e.g., consumer surplus).



# LITERATURE REVIEW

- No studies conducted to value Victoria Falls' recreation benefits so far.
- Several studies valuing recreation benefits conducted in other places.



# LITERATURE REVIEW CONT'D

- Duck hunting (Whitten & Bennett 2002); Fishing (Shrestha et 2002; Oh et al 2005); National park (Martinez-Espineira & Amoako-Tuffour 2008).



# LITERATURE REVIEW CONT'D

- Past recreation demand studies conducted due to the availability of non-market valuation techniques
- Such techniques not utilized in the case of Victoria Falls.



# METHODOLOGY

- The Travel Cost Method (TCM) was used.
- A revealed preference non market-valuation technique.
- Recreation experiences not traded in marketplace.



# ECONOMETRIC MODEL

$$\text{Visits}_i = \beta_0 + \beta_1 \text{Travelcost} + \beta_2 \text{Traveltime} + \beta_3 \text{Income} + \beta_4 \text{Educ} + \beta_5 \text{Male} + \beta_6 \text{Age}$$

- Estimated using the negative binomial regression with endogenous stratification

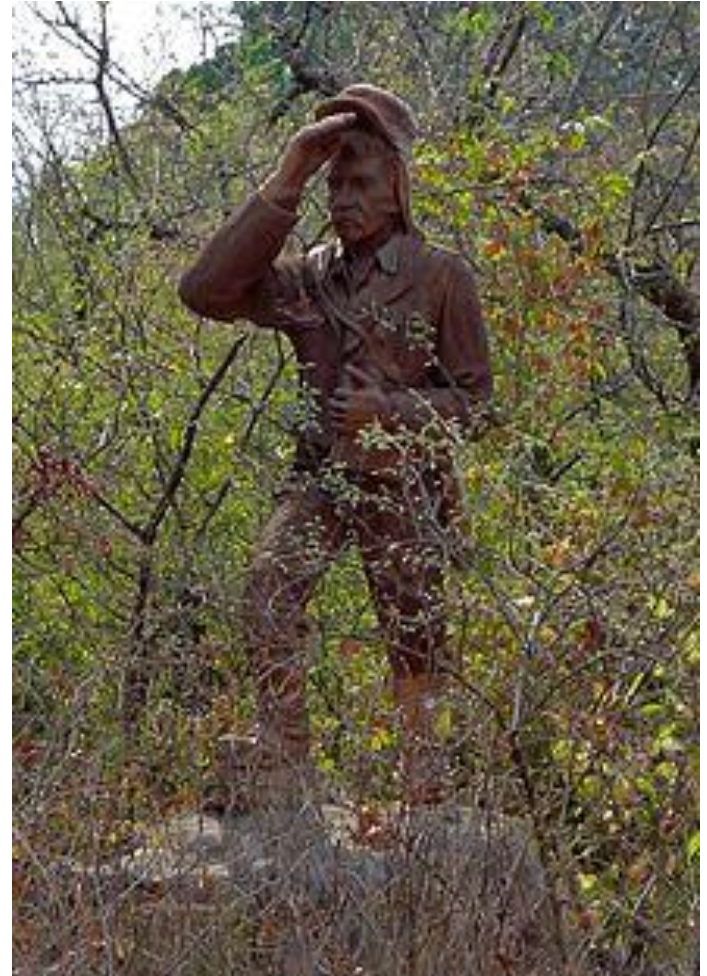


# VARIABLES' DESCRIPTION

VARIABLE	DESCRIPTION
Visits	Number of visits to Victoria Falls per year
Travel cost	Total day trip travel cost in US\$
Travel time	Time spent travelling to Victoria Falls in hours
Income	Annual household income in 1000s of US\$
Age	Respondent's age in years
Education	1, if respondent had a degree beyond an undergraduate degree, 0 otherwise
Male	1, if respondent is male, 0 otherwise

# DATA

- Onsite survey administered.
- Conducted - July-August 2012
- Visitors intercepted after viewing the Falls.
- 403 questionnaires administered in total.
- 323 usable surveys -81% response rate.



# DESCRIPTIVE STATISTICS

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Variable	Observations	Mean	Std. Dev.	Min	Max
Visits	323	1.55	2.38	1	24
Travel cost	323	303.64	370.21	3.75	1602.88
Travel time	323	6.21	7.42	0.16	48
Income	323	54.49	100.19	0.39	1000
Age	323	36.54	13.37	17	77
Educ	323	0.23	0.42	0	1
Male	323	0.65	0.48	0	1

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# REGRESSION RESULTS

VARIABLES	Visits
Travel cost	-0.012*** (0.003)
Travel time	-0.143*** (0.036)
Income	-0.019** (0.008)
Education	0.184 (0.530)
Male	0.902*** (0.288)
Age	-0.001 (0.016)
Constant	-16.19 (403.4)
$\chi^2$	84.52
Log-likelihood function	-206.165
Observations	323
Standard errors in parentheses	
*** p<0.01, ** p<0.05, * p<0.1	

# CONSUMER SURPLUS ESTIMATION

- The estimated average consumer surplus using  
-  $1/(\text{Travel cost coefficient})$  is US\$84 per person per trip.
- On average, Victoria Falls receives 131,500 visitors annually- NHCC records.



# CONSUMER SURPLUS ESTIMATION CONT'D

- Total consumer surplus from using Victoria Falls for recreation is estimated at US\$11,046,000 per year.
- CS- shows the differences between what visitors are willing to pay and what they actually paid for the visit.



# DISCUSSION/CONCLUSION

- Un-captured economic benefits exist from using Victoria Falls for recreation.
- Lower bound estimates for the full benefit derived by users.
- Policy makers should be aware of the potential for tourism growth in Livingstone

# SUGGESTIONS FOR FURTHER RESEARCH

- Cover more than one time period of data collection to understand the economic value of Victoria Falls' recreation benefits.
- Investigate the avenues through which estimated benefits can be captured.
- Contextualize estimated benefits in a broader tourism sector-economic development discourse.

THE END. THANK YOU.

