

Review of: *Study of the Economic and Social Benefits of the Nine Ontario Living Legacy Signature Sites*

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This study appears to me to be a valuable addition to the information database on the economics of parks in Ontario. The level of detail and rigour of the analysis appears to me to be unprecedented in the study of parks and protected areas in Canada. I think that the other federal and provincial agencies who manage parks and protected areas in Canada should take note of this initiative.

The study involved an interesting approach and components of the research comprised the following components:

- background profiles of communities associated with sites;
- growth and demand for use;
- determination of levels of use;
- expenditure impact analyses;
- literature review and case studie;
- survey and estimation of direct economic benefits; and,
- benefits transfer (value transfer).

The growth in demand component is a key piece of the study and should be a major factor of which Ontario managers should be cognizant. As is typical in most of these exercises, limited data are available to examine in detail growth or potential growth in use. But the following observations are relevant: (i) a growing provincial population (with regional differences) that is likely to place more demands on protected areas; (ii) the high likelihood of significance growth in use from non-resident alien (i.e., U.S.) visitors; and, (iii) the lack of similar wilderness opportunities in the U.S. and Europe. The increase in use of Woodland Caribou by canoeists is a poignant example of this potential (an increase of over 900%).

So the issue is how will park managers respond to this increasing use? What are the downsides of this increase? Of course there will be ecological impacts

of increased human use, but there are also other impacts that have the potential to decrease the value of the experience that visitors receive. One of these is congestion which is highlighted in the study.

Economists have put forth a number of tools to manage congestion: things like pricing policies, queuing, quotas, lotteries, etc. The contingent valuation method (CVM) components of the study focused on prices changes as well as congestion level changes. Study team members used CVM to assess total *use* values based on hypothetical price changes, and marginal *use* values based on hypothetical changes in crowding. This information, while useful in examining the current levels of non-market use values provided by parks, can also be used to assess the impacts of fee increases or fee introductions as well as congestion level changes. So, in my opinion, the study offers a good start on understanding the reaction of parks visitors to potential management changes, particularly pricing and congestion strategies.

One criticism of the study may be in the way the CVM questions were asked. The team claims to use a double-bounded approach. This typically involves a series of questions as follows where X represents a randomly drawn number from some distribution of values, and Y is some random number that is either added or subtracted depending on the first answer (Figure 1).

The study team only utilized the approach on the left side of this diagram where a second question always represented a price increase, so the CVM approach is not a true double-bounded one. I am not sure if this will have an impact on the final willingness to pay estimates, but I suspect that it may be minor.

Other elements of the study, however, were exemplary. For example, the distribution of the randomly drawn bids (the \$Xs) was updated three times as the study was underway. This serves to adjust the distribution to ensure that a relevant range of values were presented to respondents throughout the study.

One thing missing in the reports I reviewed was a comparison of the value estimates the study team derived with those from other related studies in Ontario and neighbouring provinces for using similar types of parks and protected areas. I constructed a table of the few studies I am aware of and some interesting patterns emerge (Table 1). First, while I haven't adjusted the values estimates to be in constant or real dollars, I suspect that for Killarney the value per trip has increased over time. Understanding why this might have occurred would be instructive as a way of understanding what increases users' value for trips

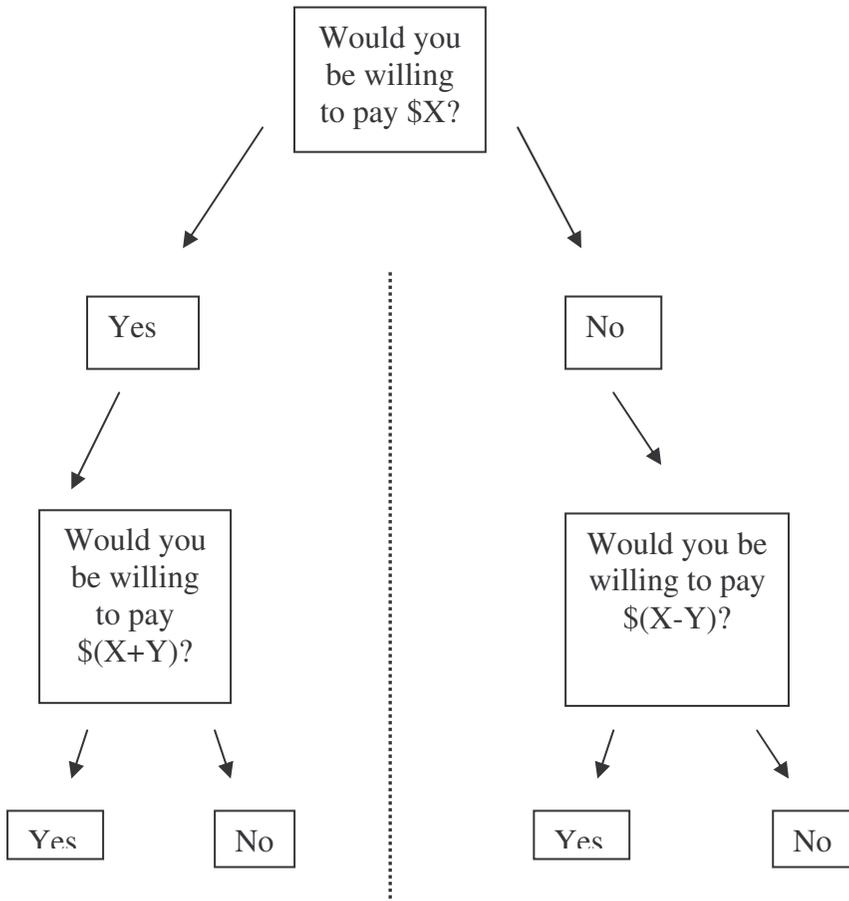


Figure 1. Typical double-bounded CVM approach.

Table 1. A summary of park and protected area values for recreation.

Location (Study Reference)	Economic Value/Trip
Killarney (Rollins and Wistowski)	\$60.65 (overall trip in 1993) \$54.97 (4 day trip)
Killarney (this study)	\$117.38 (4.4 day trip)
Nopiming Manitoba (Boxall <i>et al.</i>)	\$293 (2.7 day trip in 1993)
Spanish River (this study)	\$207.96 (6 day trip)
Woodland Caribou (Englin <i>et al.</i>)	\$4176 (6 day trip; 4 person group in 1994)

to Killarney. The other values shown suggest that the Spanish River estimates are not much different for what I think may be a similar experience at Nopiming Provincial Park in Manitoba. Finally, the more remote experiences (i.e. at Woodland Caribou) are exceedingly valuable, but keep in mind one must adjust the estimates for trip duration and group size.

Another element of the study that I know was considered but has not been reported is the concept of a recreation demand system. The idea here is that a network of parks/wilderness areas should be considered as a cluster; any changes that occur in the environments or management systems at one place have the potential to influence use in other elements of this system. Table 2, taken from a journal article by Englin *et al.* (1998) provides some idea of a demand system using a travel cost model framework. We built this system as an illustration, knowing that Quetico and Boundary Waters should also be included in this model.

Table 2. Average use, group size, travel costs, and consumer surplus associated with two alternative specifications of demand for a system of four Canadian wilderness parks.

	Wilderness Park			
	Nopiming	Atikaki	Whiteshell	Woodland Caribou
Mean days/trip	2.72	6.45	2.50	6.00
Mean group size/trip	4.03	5.93	4.41	3.81
Mean travel cost (\$ per person)	102.57	389.30	102.14	203.15
Consumer surplus/trip				
Unconstrained	117.89	162.49	132.37	157.61
Constrained	293.23	4941.66	871.65	4176.85
Consumer surplus/day				
Unconstrained	43.34	25.19	52.94	26.26
Constrained	107.80	766.14	327.06	696.14

These types of models are useful for understanding the value of recreation demand systems as well as figuring out how people would sort themselves within the system given management changes, for example, entry fee changes. One can also see which of the parks in this system provide the highest valued experiences. Of course this picture is dependent on the spatial distribution of the market – there are more people closer to Nopiming so that trips there while more frequent in occurrence, may be less ‘valuable’. This raises some questions about the values for the remote places presented in the report. Per trips values to these places should be higher values than less remote ones. Indeed, in Table 1, Spanish River values are higher than those for Killarney; but I still wonder if the difference in value should not be even larger. So in summary I think that the Ontario Parks system should be attempting to understand these demand systems. The current study may represent a step towards developing this knowledge.

Economists have recently developed the notion of benefits transfer which is a response to the fact that socioeconomic studies are expensive to conduct and that there never seems to be pots of money around to do these studies unlike for ecological or biological research. This involves the notion of ‘transferring’ the values or the valuation functions from site to site. The authors attempted to do this by transferring the values among what they viewed as similar parks. Another approach that could be considered in future is to develop travel costs models, and to transfer the functions among places conditional on the availability of local user information. This suggests that the development of registration or permitting systems would have value if the information collected on each permit could be plugged into the valuation functions. This is a simpler approach than conducting further CVM studies, although it relies on managers to be serious about collecting information from visitors at the various parks and protected areas of interest.

In conclusion, this study is likely one of the most comprehensive to date conducted by the federal or provincial government on the economic values of parks and protected areas. I would hope that this study will not be ‘terminal’ and will be viewed as a good start to collecting, gathering and using socioeconomic information in managing these areas. This information will become critical as demand and competing land uses increase. Since parks and protected areas are ‘huge’ generators of economic values that are not expressed in economic markets, traditional expenditure impact studies do not fully capture the economic picture of the presence of parks. Furthermore, with protected areas there are what economists call passive use values that may not be associ-

ated with actually 'using' the area; the mere existence of protected ecosystems may generate value irrespective of their use. This would be a worthy ground for future additional research.