Contingent Valuation of Police Dogs on University Campuses

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Introduction

Police dogs have been utilized as a crime control tool for over seven centuries (Mesloh, 2006). However, as in other law enforcement operations, it is frequently difficult to measure public support. Consequently, this study sought to quantify public opinion through contingent valuation (CV), which creates a hypothetical market to measure a respondent's preference for a public good. By asking students what they are willing to pay for police dog services, CV is able to elicit benefits where other methods are not.

Fig. 1. The University of Central Florida Police Department was acknowledged as a leader in campus canine policing and has been the focus of a feature article in the FBI Law Enforcement Bulletin.

Materials and methods

The University of Central Florida Police Department conducts an annual assessment of student perceptions of the services that they receive. As part of that survey instrument, a number of additional questions were added that probed key concepts of police dogs, drug and alcohol use, fear of crime, and basic demographic information.

Two vignettes explained a hypothetical threat (explosives or violent crime) and queried the students to provide a dollar amount that they would be willing to pay on a monthly basis to fund a police dog specifically trained to solve that problem. It was further stated that no actual assessment would take place.

A total of 598 completed surveys were collected by the end of the project period. Responses were coded and placed into S.P.S.S. for analysis. Sample demographics were very similar to those of the university as a whole, indicating a valid sampling frame.

Fig. 2. K-9 Bailey, the first narcotics detection dog, was donated by Phi Delta Theta fraternity as a show of student support for the canine program.

Fig. 3. K-9 Buddy providing explosives detection services for many visiting dignitaries on the UCF campus.

Results

A number of notable findings were identified in this study:

- Both bomb and drug dog programs were generally supported by the student body.
- On average, drug dog funding ($7.01) was less than bomb dog funding ($7.77) (Table 1).
- Seventy three percent (73%) were willing to pay $1.00 or more per month for a drug dog in comparison with seventy eight percent (78%) for a bomb dog.
- OLS regression (Table 2) indicates that specific quantifiable factors are correlated with willingness to pay for police canine services.
- Race and gender proved to be poor predictors in either contingent valuation model.
- Marijuana use was a strong predictor within the drug dog model, while cocaine use was not.
- Perceptions of the dogs ability, knowledge of K9 case law, and a general fear of dogs were strong predictors across both models.
- Zero bids ranged from 20-25%, which is slightly lower than the level identified in the literature.
- Regression models containing previously identified variables explain 14% and 14.4% of the variance in the amount that students are willing to pay for police dogs.
- Confirmed the feasibility of using contingent valuation for law enforcement evaluation as the strength of the regression models (>.14) confirms a goodness of fit.

Table 1: Comparison of Bids by Search Function

	Drug Dog	Bomb Dog
Mean	$ 7.01	$7.77
Std Deviation	$12.67	$13.11
Zero bids	25%	20%
$ 1.00 $\leq$	73%	78%
$ 5.00 $\leq$	28%	33%
$10.00 $\leq$	15%	14%
$20.00 $\leq$	4%	6%

Fig. 4. Zero bids are frequently referred in the literature as protest bids, where it is believed that product or service is not valued at zero but the respondent is unwilling to participate in the survey process.

Contrary to many contingent valuation models, the main emphasis of this study was not only in finding the mean values for drug and bomb dogs, but on predicting willingness to pay responses with variables identified in the literature. The results of the regression analysis indicates that willingness to pay is affected by specific perceptions of police dogs.

Table 2 displays the R^2, the unstandardized coefficients, standard error, and standardized regression coefficients for each variable. Within the drug dog model, marijuana use (t=-3.42, p<.001), perceived ability (t= -2.78, p<.01), legal knowledge (t= -2.31, p<.05, and fear of dogs (t= 3.16, p<.01), each were statistically significant and contributed to the overall strength of the model.

Within the bomb dog model, cocaine use (t= -2.02, p<.05), perceived ability (t= -2.62, p<.01), legal knowledge (t= -2.52, p<.05), fear of dogs (t= 4.94, p<.001, and gender (t= 2.16, p<.05) each were statistically significant and contributed to the overall strength of the model. Goodness of fit of each is shown by the amount of variance explained by each model. In these cases, 14% and 14.4% of the variance is explained, which based upon prior studies is an acceptable level (Gibb et al, 1998).

Table 2: OLS Regression of Factors Associated with Willingness to Pay for Police Canine Services

	Drug Dog Cost			Bomb Dog Cost		
Variable	B	SE	ß	B	SE	ß
Marijuana use	-.138	.043	-.151**	-.034	.040	-.039
Cocaine use	.008	.158	.002	-.302	.150	-.089*
Perceived ability	-.171	.062	-.121**	-.152	.058	-.114**
Legal knowledge	-.087	.038	-.105*	-.089	.036	-.113*
Media construction	-.037	.051	-.031	-.074	.048	-.066
Fear of dogs	.437	.139	.140**	.650	.132	.220**
Gender	.206	.113	.082	.230	.107	.097*
Fear index	-.018	.016	-.060	-.020	.015	-.060
Police index	-.054	.020	-.124	-.028	.018	-.066
White	-.096	.188	-.035	-.096	.178	-.037
Black	-.080	.231	-.021	.069	.218	.019
Hispanic	-.238	.266	-.061	-.202	.254	-.043
F	6.58***			6.84***		
R	.374			.380		
R²	.140			.144		

Note. B = unstandardized coefficient, SE = standard error, ß = standardized coefficient. *p < .05 **p < .01 *** p < .001. (two tailed)

Conclusions

While over 1600 prior uses on contingent valuation can be found in the literature (Carson et al, 1994), this was the first to quantify support for a canine program in terms of willingness to pay. In social psychological terms, contingent valuations can be considered behavioral intentions (Heberlein & Bishop 1986).

There is some debate among users of contingent valuation about dealing with individuals who report a zero bid for reasons other than the final good or service being of no value to them Depending on their reasons for bidding zero, these individuals are sometimes referred to as ''protestors.'' This offers new questions for future research in determining why 20-25% of the respondents were unable or unwilling to quantify law enforcement services.

While this study was capable of producing an aggregate social value for bomb dogs and drug dogs, perceiving these large values tends to be both confusing and misleading. Aggregate social values are computed by multiplying the mean value times the number of potential contributors. In the case of a large university, like UCF, values in the hundreds of thousands of dollars are likely to be created. However, these aggregate values should be viewed as the upper end of the market for the delivery of a service on a 24 hour/day; seven day a week basis. Regardless of the value, whether mean or aggregate, it was clear that bomb dogs were viewed more favorably than drug dogs.

The most significant findings were those variables that were significant and non-significant within the regression models. It was promising to see that race was not a factor within either model. This is encouraging when considering the early history of the police dog as a violent means of social control.

While the fear of dogs was a strong predictor within both models and was not likely to be easily modified by any type of intervention, perceptions of ability and legal knowledge were factors that might be modified through a short demonstration or training session. Consequently, law enforcement agencies striving to positively affect relations with their community clients should consider creating a proactive educational program aimed at promoting the strong points of their canine programs and the benefits that are received by utilizing trained dogs in these high visibility roles.

Literature cited

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