Cost Margin Analysis of Cat Maintenance in Bantul Regency

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Abstract

The trend of having a pets, especially cats is happening all over the world, and Indonesia is no exception. In matters of animal care, owners are required to ensure the welfare of their cats. To be able to guarantee the welfare there are costs that must be incurred by the cats owner. This study aims to calculate and analyze the cost margin of cat maintenance care and its correlations with age, income, expenditure and knowledge of animal welfare of cat owners in Indonesia, especially in the Bantul area, Yogyakarta. The study was conducted using interviews via google form to 38 respondents who have cats as pets and then compared with data obtained from the field. The findings indicate that the factors of age, income and knowledge of animal welfare have a positive effect on the amount of expenditure used to finance the welfare of their cats. The outcome of this study can help owners and prospective cat owners to plan the costs needed to finance the welfare of cats according to their economic conditions. This study also suggest that cat owners should be more able to manage the expenditures according to their income while ensuring the welfare of their cats.

Keywords: Income, Expenditure, Animal Welfare, Pets, Cats, Cost Margin

Introduction

The Indonesian people tolerate the maintenance and cultivation of individual animals. In maintenance and cultivation, animal owners must be able to ensure the welfare of the animal's life. This is in accordance with the mandate of the Law of the Republic of Indonesia number 18 of 2009 Article 2 paragraph 2 concerning husbandry and animal health which states that the implementation of husbandry and animal health is based on benefits and sustainability, security and health, democracy and justice, openness and integration, independence, partnership, and professionalism.

Animals are basically the same as living things like humans. The basic necessities of life are the same as humans. Massimo Renzo (2015 in theory of needs as justification of human rights: current approaches and problems of uncertainty and normativeness, 2018), claims that all people need food, water, water, shelter, minimal health, and a minimum level of social interaction. This is the same as animals that also need food, water, water, shelter, minimum health, and a minimum level of social interaction as their basic needs. The difference is that in pets, all of these needs depend on the humans who maintain them. The keeper must take full responsibility for the welfare of their pets.

Broom DM and Johnson KG. (1993 in the research of Susanto et al, 2015) stated that the target of animal welfare is all animals that interact with humans where human intervention greatly affects the survival of animals, not those that live in nature. Animal Welfare has 3 important aspects, namely: Welfare science measures the effects on animals in different situations and environments, from the animal's point of view. Welfare ethics about how humans should treat animals. Welfare law on how humans should treat animals.

One of the concepts of animal welfare that is widely used by animal lovers is the concept of the World Society for Protection of Animals or WSPA called The Five Freedom (Broom DM, 2002). According to Webster (1994 in the research by Lerner 2008) the Five Freedoms state that animals should be ensured:

- 1. Freedom from hunger and thirst by ready access to fresh water and a diet to maintain full health and vigour.
- 2. Freedom from discomfort by providing to suitable environment including shelter and a comfortable resting area.

- 3. Freedom from pain, injury and disease by prevention or rapid diagnosis and treatment.
- 4. Freedom from fear and distress by ensuring condition which avoid mental suffering.
- 5. Freedom to express normal behavior by providing sufficient space, proper facility and company of the animal's own kind.

To ensure the implementation of the five freedoms, pet owners often treat their pets in a special way, from feeding them, bathing them with special shampoos to taking their pets regularly to the vet for checkups (Quin 2005). The results of a survey by the American Animal Hospital Association (AAHA) stated that more than 70% of pet owners consider their pets as children, 48% are emotionally dependent on their pets and 83% will take risks in their lives for their pets. Of course it costs money to do it all. In financing for pets, the owner must adjust his financial strength in terms of income compared to expenses for pets.

According to Mangkoesubroto (2008 in Iskandar's research, 2017) states that the pattern of public consumption expenditure is based on the fact that the pattern of income receipts and consumption expenditure patterns of a person are generally influenced by the period in their life cycle. Kusuma (2008 in Iskandar's research, 2017) states the same thing where consumption expenditure is irreversible, meaning that a person's spending pattern when income increases is different from the pattern of expenditure when income decreases. Different things were expressed by several experts as stated in Iskandar's research (2017) that the average consumption tendency (APC) will be smaller if the income level increases.

During this COVID-19 pandemic, the most popular pet animal is the cat. This was revealed by Wulandari (2021) who stated that 1) the cat keeping population increased during the Covid-19 pandemic to 47% of respondents compared to other animal breeders, 2) pets are a current trend and 3) owning a pet is a the need for companions in dealing with feelings of stress and loneliness during a pandemic that limits daily activities.

Based on the reasons above, this research was conducted with the aims to calculate and analyze the cost margin of cat maintenance and its correlations with age, income, expenditure and knowledge of animal welfare of cat owners.

Method

This study uses mix methods, a combination of qualitative and quantitative. The qualitative method is based on a case study that uses a direct field survey method and the results are recorded in an excel file. Quantitative method used to get a holistic understanding by comparing the results of data processing generated from qualitative methods.

The qualitative method is carried out based on the characteristics of the respondents in the research of Pranatayasa & Wenagama (2013) which considers the following criteria:

- a. Income
- b. Age
- c. Expenditure

To support this qualitative method, the researchers conducted an online survey to several cat-loving populations in Bantul Regency. Respondents were taken using a simple random sampling method. Simple random sampling was carried out so that every member of the cat-loving population in Bantul had the same opportunity to be selected as the sample. In this inline survey 38 responses were obtained. These 38 respondents were accepted with the following considerations (1) They really are cat keepers located in Bantul, (2) They were willing to voluntarily participate in this research.

The interview, which was held online using a google form, consisted of 33 types of questions regarding the age, income, expenses and understanding of cat owners regarding the welfare of their pets and how they treat their cats. The results of the interviews were measured with a certain scale of 1 onwards with 1 being the lowest answer scale from the respondent and the higher the scale being the answer with a higher scale. Scale 0 given if respondents refuse to give an answer. For yes or no questions, use a scale of 1 for yes and 0 for no. After that, the correlation between the 2 variables will be calculated using the formula in Microsoft Excel.

According to Nuryadi et al (2017) to determine the evenness of the relationship between two variables, the correlation coefficient (r) is used. The magnitude of the correlation coefficient (r) between two variables is zero to ± 1 . If two variables have a value of r = 0, it means that there is no relationship between these variables. Meanwhile, if two variables have a value of $r = \pm 1$, then the two variables have a perfect relationship. The minus sign (-) on the value of r indicates the opposite relationship (if the value of one

variable increases, the value of the other variable decreases), and conversely the plus sign (+) on the value of r indicates a unidirectional relationship (if the value of one variable increases), then the value of the other variables also increases). It can be concluded that the higher the value of the correlation coefficient between the two variables (the closer to 1), the higher the level of closeness of the relationship between the two variables. And conversely, the lower the correlation coefficient between two kinds of variables (the closer to 0), then the level of closeness of the relationship between the two variables is getting weaker.

The interpretation of the strength of the correlation between the two variables is done by looking at the number of correlation coefficients calculated using the following criteria (Asis, 2009)

a. If the correlation coefficient shows 0, then the two variables have no relationship

b. If the correlation coefficient is close to 1, then the two variables have a stronger relationship

c. If the correlation coefficient is close to 0, then the two variables have a weaker relationship

d. If the correlation coefficient is 1, then the two variables have a positive perfect linear relationship

e. If the correlation coefficient is -1, then the two variables have a negative perfect linear relationship Or according to Suwarno (2006) which states that the strength of the correlation uses the relationship between two variables where the relationship has the following interpretation criteria.

a. 0 : there is no correlation between the two variables
b. 0-0.25 : very weak correlation
c. 0.25-0.5 : enough correlation
d. 0.5-0.75 : strong correlation
e. 0.75-0.99 : very strong correlation
f. 1 : perfect correlation

Result and discussion

Based on the results of interviews which can be seen in table 1, it was found that the majority of respondents aged between 21-30 years amounted to 53% and followed by respondents aged under 20 years amounted to 31.6%. The majority of respondents' income was between 1,000,000-2,499,000 IDR with a total respondents reached 65.8%. Of the total respondents, almost all of them only keep cats, which is 97.4%. The remaining one person keeps other animals besides cats. The number of cats owned by each respondent also varies with the majority having more than 1 cat as much as 62.2% and only 36.8% having only one cat.

All respondents claimed that they had treated their cat according to how the cat wanted to be treated, although judging from the understanding of the five freedoms, there were still many who did not understand, namely 60.5%. The rest who have understood only amounted to 39.5%. Of all these, the majority of respondents said they can ensure that their cat was free from hunger and thrist, which was 92.1%, 86.8% respondents said that they can ensure their cats are free from heat and discomfort, 89.5% respondents said that they can ensure their cats are free from wounds, disease and illness, 86.8% respondents said that they can ensure their cats are free from the number of respondents who said that they can ensure their cats are free from fear and suffering, and The number of respondents who said that they can ensure their cats are free to express their normal and natural behavior is 92.1%.

The majority of respondents, 92.1%, claimed that they understood the basic needs of cats. Of all the respondents who claim to have understood this, it turns out that they have different understandings about the needs of cats. Only 55.3% of respondents agree that the cage is a basic need for a pet cat, the remaining 44.7% think it is not. Of all respondents 71.1% agree that litter to pee is a basic need for pet cats, the remaining 28.9% think it is not. 50% of respondents agree that sterile for cats is a basic need for pet cats, balanced with the remaining 50% consider sterile for cats not a basic need. Of all respondents 86.9% agree that health checks are a basic need for pet cats, the remaining 13.1% consider it not a basic need. 52.6% of respondents agree that dental care is a basic need for pet cats, the remaining 7.9% do not think the same. As many as 71.1% of respondents agree that grooming is a basic need for pet cats. The remaining 28.9% thought grooming was not a basic need. As many as 84.2% of respondents agree that giving vitamins is a basic need for pet cats, the remaining 15.8% disagree. As many as 71.1% of respondents agree that giving vitamins is a basic need for pet cats. The remaining 15.8% thought that giving vaccines was not a basic need.

Of all respondents' answers on monthly expenses to meet the five freedom needs for cats, 28.9% said their expenses are less than 100,000 IDR per month, 23.7% said their expenses are between 100,000-299,999 IRD per month, 31.6% said their expenses are between 300,000-500,000 per month, 13.2% said that their expenses are more than 500,000 per month and the remaining 2.6% chose not to answer. Of the expenditures they made, 89.5% of respondents claimed that they had implemented a consumption expenditure pattern for cats that fits their financial capacity. A total of 78.9% of respondents agree that they will increase the budget for cat's consumption if their income is increased. A total of 52.6% of respondents will reduce the budget for their cat's consumption if their income decreases, while 47.4% will not reduce their budget. Of the total respondents, 34.2% felt burdened if the expenditure for cat needs increased, while 65.8% felt it was okay if the expenditure for cats increased.

Of all respondents when asked about the percentage of expenses for cats compared to their own monthly expenses answered that 15.8% of respondents answered that expenses for cats were less than 10% of their total expenses, 34.2% of respondents answered that expenses for cats were 10% of their total expenses, 26.4% of respondents answered that expenses for cats were 20% of their total expenses, 15.8% of respondents answered that their expenses for cats were 20% of their total expenses, and the rest chose not to answer. When asked about the percentage of their expenditure on cat needs compared to their monthly income, 26.4% of respondents answered less than 10% of total income, 26.4% of respondents also answered that the percentage of expenditure was 10% of total income, 31.6% of respondents answered 20% of total income, 7.9% answered more than 20% of total income, and the rest chose not to answer. Of the total expenditure they spend on cats, 78.9% of respondents believe that they have met the needs of their cats and 84.2% of respondents believe that they have been able to meet the nutritional needs of their pet cats.

For their daily treatment of their cats, only 76.3% felt that they had time to bathe their own cats. As many as 86.9% of respondents feel that they can always take their time to play or walk with their cat. As many as 68.4% of respondents feel that they have enough time to do a health check for their cat and the remaining 31.6% feel that they do not have time for it.

Vari able	Question	Answer	Answer Scale	Freq	(%)
X1	Age	≤ 20 years old	1	12	31.6
	0	21-30 years old	2	20	56.2
		31-40 years old	3	4	10.5
		41-50 years old	4	1	2.6
		≥ 50 years old	5	1	2.6
X2	Total monthly income	1.000.000 - 2.499.000 IDR	1	25	65.8
		2.500.000 - 3.999.000 IDR	2	8	21.1
		4.000.000 – 5.499.000 IDR	3	0	0
		5.500.000 – 6.999.000 IDR	4	2	5.3
		7.000.000 – 8.499.000 IDR	5	1	2.6
		≥ 8.500.000 IDR	6	0	0
Х3	Do you only keep cat/s?	Yes	1	37	97.4
		No	0	1	2.6
X4	The number of cats you kept	1	1	14	36.8
		2	2	11	28.9
		3	3	1	2.66
		More than 3	4	12	31.6
Y1	Treat animals the way animals	Yes	1	38	100
	want to be treated	No	0	0	0
Y2	Understand the five freedom	Yes	1	15	39.5
	theory for cats	No	0	23	60.5
Z1	Can you ensure that your cat is	Yes	1	35	92.1
	free from hunger and thirst?	No	0	3	7.9

Table 1. Respondent's Answer

Z2	Can you ensure that your cat is	Yes	1	33	86.8
	free from heat and discomfort	No	0	4	13.2
Z3	Can you ensure that your cat is	Yes	1	34	89.5
	free from wounds, disease and illness?	No	0	4	10.5
Z4	Can you ensure that your cat is	Yes	1	33	86.8
	free from fear and suffering?	No	0	5	13.2
Z5	Can you ensure that your cat is	Yes	1	35	92.1
	free to express their normal and natural behavior?	No	0	3	7.9
Y3	Do you understand the basic	Yes	1	35	92.1
	needs of a cat as pets in his life?	No	0	3	7.9
Z6	Is giving a cage a basic need for a	Yes	1	21	55.3
	cat as pets?	No	0	17	44.7
Z7	Is giving litter to pee a basic need	Yes	1	27	71.1
	for a cat as pets?	No	0	11	28.9
Z8	Is sterillisation a basic need for	Yes	1	19	50
	cats as pets?	No	0	19	50
Z9	Is a health check a basic need for a	Yes	1	33	86.9
	cat as pets?	No	0	5	13.1
Z10	Is dental caring a basic need for	Yes	1	20	52.6
	cats as pets?	No	0	18	47.4
Z11	Is fur caring a basic need for cats	Yes	1	35	92.1
	as pets?	No	0	3	7.9
Z12	Is grooming a basic need for cats	Yes	1	27	71.1
	as pets?	No	0	11	28.9
Z13	Is giving vitamins a basic need for	Yes	1	32	84.2
	cat as pets?	No	0	6	15.8
Z14	Is a vaccine a basic need for cat as	Yes	1	27	71.1
	pets?	No	0	11	28.9
X5	How much is your total monthly	< 100.000 IDR	1	11	28.9
	expenditure to fulfill the five	100.000 – 299.999 IDR	2	9	23.7
	freedoms (welfare) for your cat?	300.000 – 500.000 IDR	3	12	31.6
		> 500.000 IDR	4	5	13.2
Y4	In your opinion, have you	Yes	1	34	89.5
	implemented a consumption expenditure pattern for your cat that fits your financial capacity?	No	0	4	10.5
Y5	Would you increase the budget	Yes	1	30	78.9
	for your cat's consumption if your income increased?	No	0	8	21.1
Y6	Will you reduce the budget for	Yes	1	18	47.4
	your cat's consumption if your income decreases?	No	0	20	52.6
Y7	Do you feel burdened if your cat's	Yes	1	13	34.2
	consumption increases from before?	No	0	25	65.8
X6	What is the percentage of your spending budget to provide a	Less than 10% of total expenses	1	6	15.8
	standard of comfort for your cat in	10% of of total expenses	2	13	34.2
-					-

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	carrying out maintenance	20% of total expenses	3	10	34.2
	compared to monthly expenses?	More than 20% of total	4	6	15.8
		expenses			
X7	What is the percentage of your	Less than 10% of total income	1	10	26.4
	spending budget to provide a	10% of of total income	2	10	26.4
	standard of comfort for your cat in	20% of total income	3	12	31.6
	carrying out maintenance	More than 20% of total	4	3	7.9
	compared to your monthly	income			
	income?				
Y8	From the total budget that you	Yes	1	30	78.9
	spend on caring your cat, are you	No	0	8	21.1
	sure you have met your cat's				
	needs?				
Y9	From the total income budget you	Yes	1	32	84.2
	have, have you met your cat's	No	0	6	15.8
	nutritional needs?				
Z15	Do you have enough free time to	Yes	1	29	76.3
	bathe your cat?	No	0	9	23.7
Z16	Do you give enough free time to	Yes	1	33	86.9
	play or walk with your cat?	No	0	5	15.8
Z17	Do you give enough free time to	Yes	1	26	68.4
	do a health consultation for your	No	0	12	31.6
	cat?				

This section discusses the relationship between the various variables asked in the interview. Correlation relationships are classified into several factors and the correlation is calculated, namely:

a. Correlation between respondents answer who have treated cats according to the way cat's want to be treated and the owner's willingness to spend time with their cats (Y1 agains Z15, Z16, and Z17)
 Table 2. Correlation between respondents answer who have treated cats according to the way cat's want

to be treated and the owner's willingness to spend time with their cats						
	Variable Y1 Correlation					
	Z15	0	No Correlation			
	Z16	0	No Correlation			
	Z17	0	No Correlation			

Table 2 shows that among respondents who stated that they had treated their cat the way cats wanted to be treated, there was no correlation with the respondent's availability of time to bathe, play, walk or check health with their cat.

b. The correlation between the understanding of the five freedoms and the treatment of the five freedoms by the owner (Y2 agains Z1, Z2, Z3, Z4, and Z5)

Table 3. The correlation between the understanding of the five freedoms and the treatment of the five freedoms by the owner

Variable	Y2	Correlation
Z1	-0.162876151	Very Weak Negatif
Z2	0.054396114	Very Weak Positif
Z3	0.314347307	Weak Positif
Z4	0.054396114	Very Weak Positif
Z5	0.101564908	Very Weak Positif

In table 3, it can be seen that the correlation between the understanding of the five freedoms and the respondent's belief that they have implemented the five freedoms described by WSPA almost all have a

positive correlation although it is still very weak. An anomaly occurs in the correlation of understanding the five freedons to the treatment of respondents who feel that they have ensured their cat is free from hunger and thirst which has a very weak negative correlation or an inverse correlation.

c. Correlation between understanding of basic need for pet cats and various cat needs (Y3 against Z6, Z7, Z8, Z9, Z10, Z11, Z12, Z13, and Z14)

Y3	Correlation
0.129125273	Very Weak Positif
0.028313733	Very Weak Positif
-0.097590007	Very Weak Negatif
0.174739551	Very Weak Positif
-0.08229512	Very Weak Negatif
-0.085714286	Very Weak Negatif
-0.186870637	Very Weak Negatif
0.140859042	Very Weak Positif
0.028313733	Very Weak Positif
	0.129125273 0.028313733 -0.097590007 0.174739551 -0.08229512 -0.085714286 -0.186870637 0.140859042

Table 4. Correlation between understanding of basic need for pet cats and various cat needs

Table 4 shows that respondents' understanding of the cat's basic need has a very weak positive correlation for the variables of cage provision, litter sand, health checks, vitamins and vaccines. However, it has a weak negative correlation with the provision of sterile for cat, dental care, fur care and grooming.

d. Correlation between owner's age and income with expenses made for cat needs (X1 and X2 against X5, X6, and X7)

Table 5. Correlation between owner's age and income with expenses made for cat needs

Variable	X1	Correlation	X2	Correlation
X5	0.40948645	Weak Positif	0.298623624	Weak Positif
X6	-0.164810738	Very Weak Negatif	-0.168113473	Very Weak Negatif
X7	-0.243363788	Very Weak Negatif	-0.237994398	Very Weak Negatif

It can be seen in table 5 that the respondent's age and monthly income are positively correlated with the total expenditure used to fulfill the five freedoms in cats although it is still very weak. Meanwhile, age and income have a very weak negative correlation with the percentage of expenses for cats compared to the respondents' monthly income and expenses.

e. Correlation between understanding of the five freedoms, basic need of cats and treatment of cats with expenditures made for cat needs (Y1, Y2, and Y3 against X5, X6, and X7)

 Table 6. Correlation between understanding of the five freedoms, basic need of cats and treatment of cats with expenditures made for cat needs

Variable	Y1	Correlation	Y2	Correlation	Y3	Correlation
X5	0	No correlation	0.319443713	Weak Positif	0.333243948	Weak Positif
X6	0	No correlation	0.191423281	Very Weak Positif	0.067594318	Very Weak Positif
X7	0	No correlation	0.353238291	Very Weak Positif	0.014021141	Very Weak Positif

From table 6 it can be seen that the respondent's treatment according to what the cat wants is not correlated with the expenditure made for the cat's needs. Meanwhile, the understanding of the five freedoms and the respondent's understanding of the cat's basic need have a weak positive effect on the expenditure they provide for the welfare of their cat.

f. Correlation between spending budget and whether the respondent feels that the expenditure for his cat is in accordance with his financial capacity (X5, X6, and X7 against Y4, Y5, Y6, Y7, Y8 and Y9)

 Table 7. Correlation between spending budget and whether the respondent feels that the expenditure for

 his cat is in accordance with his financial capacity

Variable	X5	Correlation	X6	Correlation	X7	Correlation
Y4	0.390414738	Weak Positif	0.154421843	Very Weak Positif	0.094452865	Very Weak Positif
Y5	0.07525964	Very Weak Positif	0.242838329	Very Weak Positif	0.246136596	Very Weak Positif
Y6	- 0.169525818	Very Weak Negatif	-0.415581387	Weak Negatif	-0.431021828	Weak Negatif
Y7	- 0.216676603	Very Weak Negatif	-0.128473666	Very Weak Negatif	-0.235141685	Very Weak Negatif
Y8	0.409575037	Weak Positif	0.175857125	Very Weak Negatif	0.083467018	Very Weak Positif
Y9	0.559290152	Strong Positif	0.353239149	Weak Negatif	0.217744248	Very Weak Positif

Table 7 shows that the total monthly expenditure for cat welfare, the percentage of expenditure on cats compared to the respondent's monthly income and expenditure has a very weak positive correlation with the respondent's opinion that they have carried out an expenditure pattern that is in accordance with their financial capacity. It is also positively correlated with respondents' willingness to increase their spending budget for cats if their monthly income increases although it is still very weak. In addition, it is also positively correlated with respondents' beliefs that they have been able to meet the needs and nutrition for their cats, also very weak positive correlations. In fact, a negative correlation is shown between the total monthly expenditure for cat welfare, the percentage of expenditure on cats compared to the respondent's monthly income and expenditure with the respondent's willingness to reduce expenditure for his cat if income decreases and whether the respondent feels burdened if the expenditure for his cat increases.

Conclusion

The conclusion is obtained after knowing the correlation between several factors in the list of interviews with respondents. The main factors such as age, monthly income and monthly expenses of respondents have a positive correlation although only have weak and very weak correlations with the total expenditure made for cat welfare maintenance. While the factors of age and monthly income has no effect on the percentage of the budget issued by respondents to finance their cat. The percentage of the budget issued may be the same but the amount spent will be different when viewed from the age factor and monthly income of the respondent.

This is in accordance with the consumption theory expressed by Mangkubroto (2008 in Iskandar's research, 2017) which has been explained before. The pattern of consumption expenditure or total expenditure will change in number influenced by its life cycle, in this case the age factor and changes in monthly income. Unlike other theories, the statement by Kusuma (2008 in Iskandar's research, 2017) states that the average tendency to consume will be smaller if the income level increases. The results showed that there was a mismatch when viewed from the percentage of respondents' willingness to increase spending if their income increased which reached 78.9%. This means that consumption expenditure will increase if the amount of income increases.

In the study, there is also an estimate of the amount of monthly expenditure spent on raising a cat. The majority of respondents' costs are around 100,000-500,000 IDR. This can be a consideration for both cat keeper and prospective cat keeper about the budget that must be prepared for cat care.

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