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Impact of the Economic Recession on Companion Animal Relinquishment, Adoption, and Euthanasia: A Chicago Animal Shelter's Experience

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Abstract

This study investigated how the current economic recession (since December 2007) has affected dog and cat relinquishment, adoption, and euthanasia at the Anti-Cruelty Society animal shelter in Chicago, Illinois. The study compared temporal patterns of the investigated statistics before (2000–2007) the start of the current recession with the patterns after the start of the recession (2008–2010). The results showed that once the guardianship (ownership) of a nonhuman animal had been established, the recession did not greatly affect the owner's decision on relinquishment—except for the relinquishment of senior dogs, which may be associated with increased costs of care. However, an unfavorable economic environment may have reduced adoption of animals. The consequences of a decline in adoptions might be reflected in an increase in the proportion or number of sheltered animals euthanized. This study demonstrated how monitoring changes in temporal patterns in these shelter statistics can help guide animal shelters to better prepare for the current recession.

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Abstract

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This study investigated how the current economic recession (since December 2007) has affected dog and cat relinquishment, adoption, and euthanasia at the Anti-Cruelty Society animal shelter in Chicago, Illinois. The study compared temporal patterns of the investigated statistics before (2000–2007) the start of the current recession with the patterns after the start of the recession (2008–2010). The results showed that once the guardianship (ownership) of a nonhuman animal had been established, the recession did not greatly affect the owner's decision on relinquishment—except for the relinquishment of senior dogs, which may be associated with increased costs of care. However, an unfavorable economic environment may have reduced adoption of animals. The consequences of a decline in adoptions might be reflected in an increase in the proportion or number of sheltered animals euthanized. This study demonstrated how monitoring changes in temporal patterns in these shelter statistics can help guide animal shelters to better prepare for the current recession.

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The current economic recession, which began in December 2007 (National Bureau of Economic Research, 2010), affects our communities in many ways. Companion nonhuman animals, who share a close relationship with humans, are inevitably affected by the recession (Patronek, Beck, & Glickman, 1997; Patronek, G. J., Beck, A. M. and Glickman, L. T. 1997. Dynamics of dog and cat populations in a community. *Journal of the American Veterinary Medical Association* , 210: 637–642. [PubMed], [Web of Science ®], [CSA]

View all references; Scarlett, 2008**12**. Scarlett, J. M. 2008. Interface of epidemiology, pet population issues and policy. *Preventive Veterinary Medicine* , 86(34): 188–197. [CrossRef], [PubMed], [Web of Science @]

View all references; Although many studies have investigated risk factors for dog and cat relinquishment and factors affecting the success of animal adoption (DiGiacomo, Arluke, & Patronek, 1998**1**. DiGiacomo, N., Arluke, A. and Patronek, G. 1998. Surrendering pets to shelters: The relinquisher's perspective. *Anthrozoös* , 11: 41–51. [CrossRef], [Web of Science @]

View all references; Marston & Bennett, 2003**3**. Marston, L. C. and Bennett, P. C. 2003. Reforging the bond-towards successful canine adoption. *Applied Animal Behaviour Science* , 83: 227–245. [CrossRef], [Web of Science @], [CSA]

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View all references; Posaige, Bartlett, & Thomas, 1998**10**. Posaige, J. M., Bartlett, P. C. and Thomas, D. K. 1998. Determining factors for successful adoption of dogs from an animal shelter. *Journal of the American Veterinary Medical Association* , 213: 478–482. [PubMed], [Web of Science @], [CSA]

View all references), the latest study was conducted more than 10 years ago. The economic environment of recession might substantially alter risk factor patterns and their relationships to companion animal overpopulation. More directly, the recession might also reduce the already limited resources for fighting the surplus of companion animals. How animal shelters and nonprofit animal protection organizations prepare for this recession is vital. This adverse economic environment provides researchers with a unique opportunity to address these important issues.

In this study, we focused on how the current recession affects the dynamics of animal intake (such as relinquishment) and disposal (such as adoption and euthanasia) at the Anti-Cruelty Society's (ACS) animal shelter in Chicago, Illinois. Specifically, the study was carried out to test the following hypotheses:

1. The numbers of dogs and cats relinquished will increase during the recession period (after 2007).
2. The numbers and proportions of dogs and cats adopted among sheltered animals will decrease during the recession period.
3. The numbers and proportions of dogs and cats euthanized at the participating shelter will increase during the recession period.
4. The economic recession will affect dogs more than cats.

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This study was conducted at the animal shelter of the ACS in Chicago, Illinois. The ACS animal shelter is one of the largest shelters serving the Chicago metropolitan area and the surrounding neighborhoods in northern Illinois. Because the ACS has been keeping electronic records of all animals brought in and/or housed at the shelter since 1991, this allows the researcher to evaluate the long-term temporal patterns in animal relinquishment, adoption, and euthanasia. In this study, we reviewed and analyzed the ACS shelter records on dog and cat intake and disposal between 2000 and 2010. In particular, we assessed the impact of the current economic recession by comparing the temporal patterns in these measures before and after the start of the recession. In order to include 2010 data in the analysis, only the records between January 1 and September 15 for the 11 years of investigation were evaluated. Holt's exponential smoothing method was used to estimate the predicted values (and their 95% confidence limits [CL]) for years 2008 to 2010 (defined as the recession period) by using the data from the prerecession period (2000 to 2007). The observed values during the recession were then compared with these predicted values and their 95% CL. In the ACS database, the age of the animal was classified into the following groups: (a) kitten or puppy (less than 6 months old), (b) adults (from 6 months to less than 8 years old), and (c) seniors (8 years or older).

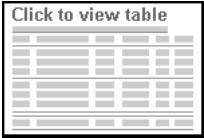


TABLE 1 Key Words Used to Identify Reporting Cost, Moving or Foreclosure of Home, or Illness of the Nonhuman Animal as the Primary Reason for Relinquishment by the Caregivers (Owners) Who Surrendered Their Animals to the Anti-Cruelty Society Animal Shelter in Chicago, Illinois

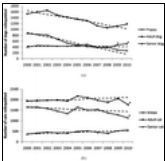
In order to further investigate the impact of the recession, we compared the temporal patterns in reporting cost, moving or foreclosure of home, or illness of the animal as the primary reason for relinquishment before and after the start of the recession. These reasons were believed to be dependent on the caregiver's (owner's) financial status. The information on reporting the primary reason for relinquishment was collected in free text at the ACS shelter. Table 1 summarizes the keywords used to define the primary reason for relinquishment as cost, moving or foreclosure of home, and illness of the animal.

RESULTS

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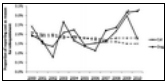
The projection using the ACS shelter data during the prerecession period (2000 to 2007) showed a steadily decreasing trend in the numbers of puppies and adult dogs relinquished, whereas the projected number of animals relinquished stayed constant across the years for all age categories of cats and senior dogs (Figure 1a, Figure 1b). After comparing the observed data with the projected trend, the number of senior dogs relinquished showed a significant increase in 2009 and 2010 (Figure 1a). The observed numbers of puppies and adult dogs relinquished were also greater than the predicted values during the recession period, although the differences did not surpass the upper 95% CL. Opposite results were observed in the numbers of kittens and adult cats relinquished in 2010, which were lower than the projected values (Figure 1b). After further investigations on whether there was a change in the patterns of reporting cost, moving or foreclosure of home, or illness as the primary reason for relinquishment before and after the start of the recession, cost was the only one showing a significant difference from the predicted values (Figure 2).



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FIGURE 1 Temporal patterns in the numbers of dogs and cats relinquished to the Anti-Cruelty Society Animal Shelter (Chicago, Illinois) between January 1 and September 15 of each year from 2000 to 2010. The dashed lines are the predicted values estimated by the data from 2000 to 2007 using Holt's exponential smoothing method. "+" indicates the observed value is above the 95% upper limit for the predicted value and "-" indicates the observed value is below the 95% lower limit for the predicted value. Puppy or Kitten: less than 6 months old; Adult: from 6 months to less than 8 years old; Senior: 8 years or older.

Temporal patterns in the numbers of senior dogs, kittens, and adult cats adopted showed significant differences before and after the start of the recession (Figure 3a, Figure 3b). A more consistent decrease was observed in the adoption of senior dogs and kittens than in the adult cats. Temporal patterns changed, particularly in dog adoption, after adjusting for the number of animals relinquished. Using the data from 2000 to 2007, the projected trends in the proportion of dogs adopted were increasing across the three age groups, contrasting with a steeply decreasing trend seen in the number of puppies adopted. The proportion in dogs adopted consistently showed decreases after the start of the recession compared with the trend before the recession, regardless of the age of the animals (Figure 3c). Less consistent findings were observed in the proportion of cats adopted (Figure 3d).



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FIGURE 2 Temporal patterns in the proportion of owners reporting cost as the primary reason for surrendering dogs and cats to the Anti-Cruelty Society Animal Shelter (Chicago, Illinois) between January 1 and September 15 of each year from 2000 to 2010. The dashed lines are the predicted values estimated by the data from 2000 to 2007 using Holt's exponential smoothing method. "+" indicates the observed value is above the 95% upper limit for the predicted value.

The projected trend using the data from 2000 to 2007 showed a consistent decline in the numbers of adult dogs and kittens euthanized during the recession period at the ACS shelter (Figure 4a, Figure 4b). The observed number of dogs euthanized was greater than the predicted values, whereas the observed number of adult cats euthanized was lower than the predicted values. After adjusting for the number of animals relinquished, an increase in the proportion of dogs euthanized still appeared (Figure 4c and Figure 4d).

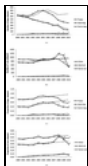
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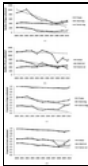
To our knowledge, this is the first study to scientifically investigate the impact of a recession on companion animal (canine and feline) relinquishment, adoption, and euthanasia. However, the study data were collected from only one animal shelter (the ACS shelter) serving mainly the metropolitan area of Chicago, Illinois, a region that includes other shelters. Therefore, the results from this study might only be representative of the participating animal shelter. Nonetheless, this study presented a simple method to investigate how the current recession affects those commonly collected shelter statistics. One necessary assumption applied, while making such inferences by comparing the temporal patterns before and after the start of the recession, is that the current recession was the only factor that differed between these two time periods.



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FIGURE 3 Temporal patterns in the numbers and proportions of animals adopted among those surrendered to the Anti-Cruelty Society Animal Shelter (Chicago, Illinois) by their owners between January 1 and September 15 of each year from 2000 to 2010. The dashed lines are the predicted values estimated by the data from 2000 to 2007 using Holt's exponential smoothing method. "+" indicates the observed value is above the 95% upper limit for the predicted value and "*" indicates the observed value is below the 95% lower limit for the predicted value. Puppy or kitten: less than 6 months old; Adult: from 6 months to less than 8 years old; Senior: 8 years or older.

Our findings suggest that once the ownership of a nonhuman animal has been established, the recent economic recession does not affect cat owners' decisions on relinquishing the animal. The data showed that the number of cats relinquished after the start of the recession did not differ from the prerecession period, excepting a decrease in kittens and adult cats relinquished in 2010. Opposite to the temporal patterns observed in the number of cats relinquished, the number of senior dogs relinquished during the recession was greater than the projected trend using the prerecession data.



View larger version(33K)

FIGURE 4 Temporal patterns in the numbers and proportions of animals euthanized among those surrendered to the Anti-Cruelty Society Animal Shelter (Chicago, Illinois) by their owners between January 1 and September 15 of each year from 2000 to 2010. The dashed lines are the predicted values estimated by the data from 2000 to 2007 using Holt's exponential smoothing method. "+" indicates the observed value is above the 95% upper limit for the predicted value and "*" indicates the observed value is below the 95% lower limit for the predicted value. Puppy or kitten: less than 6 months old; Adult: from 6 months to less than 8 years old; Senior: 8 years or older.

To further study how the recession has affected relinquishment, we investigated the primary reasons for relinquishment, which were believed to be associated with the owner's financial status. Cost was the only factor among the three investigated primary reasons for relinquishment that showed a significant increase from the projected trend using the prerecession data. In addition, the increase in reporting cost as the primary reason for relinquishment was observed more consistently among dog owners than in cat owners.

The shelter records also suggest that an unfavorable economic environment may discourage people from adopting animals. We investigated both the number and proportion of animals adopted in this study. Although the number of animals adopted might reflect more closely the demands of the community, this measure depends heavily on the number of animals relinquished. Combining the findings of the trends in the numbers of animals relinquished and adopted would explain the differences between the findings using absolute numbers and proportions of animals adopted. Greater differences were observed in dog adoptions than in cat adoptions as the number of dogs relinquished to the ACS shelter varied more across the years than did the number of cats relinquished. Despite these differences, both measures—numbers and proportions of animal adopted—suggested a decrease in animal adoptions during the recession period compared with the prerecession period. The findings also showed that a more consistent decrease in the proportion of animals adopted was observed in dogs than in cats.

The consequences of a decline in animal adoptions might be reflected in an increase in the number and proportion of sheltered animals euthanized in recent years. However, inconsistent findings of the trends in euthanasia indicate that other factors may also contribute to the shelter's decisions on euthanasia (Rogelberg et al., 2007¹¹, Rogelberg, S. G., Reeve, C. L., Spitzmuller, C., DiGiacomo, N., Clark, O. L., Teeter, L. and Carter, N. T. 2007. Impact of euthanasia rates, euthanasia practices, and human resource practices on employee turnover in animal shelters. *Journal of the American Veterinary Medical Association*, 230: 713–719.

[CrossRef], [PubMed], [Web of Science ®] View all references). The findings that only a very small proportion of senior animals at the shelter have been adopted deserve further discussion. The shelter records revealed that illness of animals could not explain the high proportion of animals euthanized in this age group because the percentage reporting illness of animals as the primary reason for relinquishment ranged from only 4% (in 2010) to 61% (in 2003). In addition, the proportion of those reporting illness of animals as the primary reason for relinquishment did not differ before and after the start of the recession.

These findings together suggest that incentive programs, such as low cost spay/neuter and veterinary care, commonly offered by animal shelters during this difficult time may show greater benefits and effectiveness in promoting animal adoptions (Frank & Carlisle-Frank, 2007². Frank, J. M. and Carlisle-Frank, P. L. 2007. Analysis of programs to reduce overpopulation of companion animals: Do adoption and low-cost spay/neuter programs merely cause substitution of sources?. *Ecological Economics*, 62: 740–746.

[CrossRef], [Web of Science ®] View all references; White, Jefferson, & Levy, 2010¹³. White, S. C., Jefferson, E. and Levy, J. K. 2010. Impact of publicly sponsored neutering programs on animal population dynamics at animal shelters: The New Hampshire and Austin experiences. *Journal of Applied Animal Welfare Science*, 13: 191–212.

[Taylor & Francis Online], [PubMed], [Web of Science ®] View all references). Although a longer follow-up is needed to confirm whether the observed direction of temporal trends continues, the findings of a greater and more consistent impact of the current economic recession on dog adoption are not surprising, considering that the cost for having a dog is greater than the cost of having a cat. The results from the investigation of reporting cost as the primary reason for relinquishment further support this argument.

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In summary, the results from this study suggest that the current recession has a greater impact on animal adoption than on relinquishment and consistently affects dogs more than cats. Therefore, promoting adoption may be one of the most important strategies to avoid an increase in euthanizing unwanted animals. However, whether promoting adoptions will alter the number of future relinquishments was not evaluated in this study. Providing assistance to new adopters should be equally important for promoting adoptions to ensure the success of ownership. Because the data were collected from only one animal shelter in a limited geographic area and included only 3 years after the start of the recession, conducting continued monitoring of the trends and getting a representative sample of animal shelters in the United States are crucial. Nonetheless, this study demonstrated how monitoring changes in temporal patterns in these shelter statistics can help guide animal shelters to better prepare for the current recession.

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