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ARTICLE

Regulators Should Value Nonhuman Animals

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Abstract
Some regulations do not only reduce human deaths, injuries, and illnesses; they also protect nonhuman animals. Regulatory Impact Analyses, required by prevailing executive orders, usually do not disclose or explore benefits or costs with respect to nonhuman animals, even when those benefits or costs are significant. This is an inexcusable gap. If a regulation prevents dogs, horses, or cats from being killed or hurt, the benefits should be specified and quantified. This proposition holds even if those benefits are in some sense incidental to the main goal of the regulation. At the same time, turning the relevant benefits into monetary equivalents raises serious challenges, akin to those raised by the valuation of statistical children.

1. The problem

The Cameron Gulbransen Kids Transportation Safety Act of 2007[1] authorizes the Secretary of Transportation to

> expand the required field of view to enable the driver of a motor vehicle to detect areas behind the motor vehicle to reduce death and injury resulting from backing incidents, particularly incidents involving small children and disabled persons. The Secretary may prescribe different requirements for different types of motor vehicles to expand the required field of view… Such standard may be met by the provision of additional mirrors, sensors, cameras, or other technology to expand the driver's field of view.

Suppose, as seems likely, that mirrors, sensors, or cameras would not only prevent death and injury to human beings; they would also prevent death and injury to nonhuman animals, including dogs.[2] Suppose that the specialists at the Department of Transportation are able to

[1] Pub. L. No. 110–189, 122 Stat. 639.

[2] Nonhuman animals are frequently victims of driving accidents (Canal *et al.,* 2018; Klainbart et al., 2018). It would be immensely valuable, in fact, to obtain evidence on the effects of motor vehicle safety regulations in reducing deaths of and injuries to dogs, cats, deer, and other nonhuman animals. Obtaining that kind of evidence is one of the goals of the recommendations in this essay.

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project the relevant numbers from all three interventions, including the number of dogs whose deaths would be prevented. Ought the relevant savings to be disclosed or taken into account? Ought they to be documented in the department's Regulatory Impact Analysis? Ought the department to give weight to those savings in deciding which option to adopt? Why not?

Now consider the following cases:

1. A proposed air pollution regulation, from the Environmental Protection Agency, is anticipated to prevent the premature deaths of 20,000 dogs and illnesses in 45,000 dogs.[3]
2. A proposed water pollution regulation, also from the Environmental Protection Agency, is anticipated to prevent the premature deaths of 600 dogs and illnesses in 4,000 dogs.
3. A proposed regulation from the Centers for Disease Control and Prevention is anticipated to prevent the deaths of 5,000 dogs and illnesses in 15,000 dogs.[4]

Should the relevant benefits be included in the accompanying Regulatory Impact Analysis? Should agencies consider the relevant benefits in deciding whether to go forward with the relevant regulation?[5] Should agencies consider more stringent regulations if and because they would benefit nonhuman animals? The answer to the first question is an emphatic "yes"; the answer to the second and third questions depends on applicable law and will often be "yes." The death of a nonhuman animal is a loss, and the same is true of an injury or illness. The failure to consider mortality and morbidity benefits to dogs is a significant gap.[6] That conclusion applies to other living creatures such as cats, horses, pigs, cows, and birds as well.[7] It is not limited to nonhuman animals that human beings find adorable or charismatic or that people like or love. It applies even when the benefits (or costs) to nonhuman animals are in some sense an incidental effect of the regulation in question. It applies not (only) because and to the extent that human beings care about nonhuman animals but because the welfare of nonhuman animals matters for its own sake. Nonetheless, agencies typically say little or nothing about relevant benefits and costs.[8] One reason may be the difficulty of quantification and monetization.

In 2023, the Office of Management and Budget issued a substantial revision of Circular A-4, which sets out guidance governing analysis of the costs and benefits of regulations (Office of Management and Budget, 2023). The new circular contains many advances (Sunstein, 2024), but it does not explore the question of whether and how to consider effects

[3] There is strong evidence that air pollution has adverse effects on canine health and mortality (Calderón-Garcidueñas et al., 2017; Giugliano et al., 2024). In fact, the EPA studied the impact of pollution on dogs in a 1980 study (Environmental Protection Agency, 1980), and a Department of Health, Education, and Welfare official wrote a 1961 paper on a similar topic (Catcott, 1961). It would be valuable to catalogue those effects, or at least refer to them, in regulations involving air pollution.

[4] The Centers for Disease Control and Prevention do regulate to protect animal welfare, for example, in a 2023 proposal to amend its animal importation guidelines (Centers for Disease Control and Prevention, 2023).

[5] The issue was indirectly involved in *Entergy Corp. v. Riverkeeper, Inc.*, 556 U.S. 208 (2009), where the relevant regulation was designed to protect fish from "impingement." The Environmental Protection Agency monetized commercial uses of the fish, but it did not monetize the value of the fish as such. For relevant discussion, with reference to nonuse benefits, see Harrison *et al.* (2012).

[6] An excellent, wide-ranging treatment, reaching similar conclusions, is found in Stawasz (2020).

[7] On the philosophical issues, there is of course an extensive literature, which has informed the discussion here (Korsgaard, 2018; Nussbaum, 2023).

[8] Stawasz (2020) catalogues agency silence on the matter and laments that "few if any government agencies take a systematic approach to estimating, integrating, and valuing losses to nonhuman animals quantitatively."

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on nonhuman animals. That was a missed opportunity.[9] The difficult question is not whether to consider such effects; it is how to turn them into monetary equivalents. As we shall soon see, that question is closely related to one of the most challenging and unanswered questions in regulatory practice, which involves the valuation of children's lives.

2. Background: Valuing statistical (human) lives

To understand the relevant issues, and the challenges with valuing the lives of nonhuman animals, we should begin with Executive Orders (E.O.) 12866 (1993) and 13563 (2011), which direct federal agencies both to quantify and to monetize the benefits and costs of proposed and final regulations. It is well known that to monetize mortality benefits, agencies rely on the value of a statistical life (VSL).[10] That number, now in the vicinity of $12 million (Department of Transportation, 2021), is a principal driver of benefits calculations for many regulations (Hemel, 2022). By way of background for the question of whether and how to value nonhuman animals, note that (or recall that) to produce monetary amounts for statistical risks, agencies in the United States rely on two kinds of evidence.[11]

The first and most important, of ambiguous relevance to valuation of the lives of nonhuman animals, involves real-world markets, producing evidence of compensation levels for actual risks (Viscusi & Aldy, 2003; Viscusi, 2010). If employers impose a workplace risk on their employees, how much are employees paid to assume that risk? How much do employees demand? How much do they get? In the workplace and in the market for consumer goods, additional safety has a price; market evidence is investigated to identify that price. The advantage of such real-world markets is that under certain assumptions, they will reveal people's actual preferences, especially when large populations are aggregated. In part for this reason, real-world markets provide the foundation for actual government practice (Office of Management and Budget, 2023). We might want to ask whether and how real-world markets help in the valuation of nonhuman animals. A serious problem, to which we will return, is that nonhuman animals as such do not have money and hence are willing to pay exactly $0 to reduce statistical risks they face, even though they would gain a great deal of welfare from not being killed, sickened, or hurt.

Even with respect to people, a potentially serious disadvantage of the relevant studies is that the underlying decisions are "noisy." A decision to take a construction job, for example, is based on a whole host of considerations. Workers are most unlikely to think:

[9] Consider Stawasz (2020) with reference to *Entergy Corp v. Riverkeeper* (citations omitted):

> To aid in assessing what was at stake for these billions of age-one-equivalent fish, note that the best evidence available provides good reason to suspect that fish are sentient and can feel pain, two common criteria for moral consideration. As the leading book on the topic concisely summarizes, "if we already accept that mammals and birds are sentient creatures that have the capacity to experience positive and negative emotions—pleasure or suffering, we should conclude that there is now sufficient evidence to put fish alongside birds and mammals." This conclusion is not limited to big fish, who one might intuit are smarter because of larger brains or nervous systems; indeed, important evidence for this conclusion comes even from relatively small fish like gobies, zebrafish, and even tiny juveniles.

[10] For general discussion, see Viscusi (2018).

[11] The literature appears to begin with Thaler and Rosen (1976).

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"I will face an annual mortality risk of 1/100,000 rather than 1/200,000, but it's worth it!" How many people know the risks, and how many people balance them against other factors? Whenever people take a job, live in a city, or purchase products, it is not easy for them to isolate the particular component that is attributable to mortality risks. In fact, that seems like a singularly challenging task. For this reason, some people object that real-world data about choices, involving a large set of consequences, cannot possibly tell us how much people are willing to pay, or to accept, for mortality risks of particular sizes. There are related questions about whether people are sufficiently informed and whether their decisions are fully rational. For now, consider a possible response by those who rely on real-world evidence: Across large populations, we really do find sufficiently steady numbers, justifying the view that people are paid a specified amount to face mortality risks (Viscusi, 2018). Maybe they are right; maybe they are wrong. We need not answer that question here.

The second kind of evidence, at first glance more promising for the topic at hand, comes from contingent valuation studies, which ask people, through surveys, how much they are willing to pay to reduce statistical risks.[12] For example, how much would you be willing to pay to avoid a 1/100,000 risk of getting cancer as a result of arsenic in drinking water? We might similarly ask people: How much would you be willing to pay to eliminate a 1/100,000 risk that your dog will get cancer as a result of arsenic in drinking water?

The advantage of contingent valuation studies is that they can isolate people's willingness to pay to avoid mortality risks. In this respect, they are far less noisy than real-world data. If we find that the average person is willing to pay $100 to eliminate a mortality risk of 1/100,000, perhaps we can conclude that the VSL is $10 million – not in the sense that a life is really "worth" that amount, or even in the sense that a 1/1,000 mortality risk is worth $10,000, or a 1/100 mortality risk is worth $100,000, but in the sense that when government is eliminating a 1/100,000 risk faced by a large population, $100 is the right number to assign.

To be sure, contingent valuation studies face well-known challenges (Diamond & Hausman, 1994; Kling *et al.,* 2012). Some of the questions are hypothetical and highly unfamiliar, and unless the studies are done with great care (Weimer and Vining, 2024), there will be many reasons to wonder whether they provide an accurate measurement rather than a stab in the dark. Suppose that you are asked how much you are willing to pay to eliminate a mortality risk of 1/10,000. That question might seem so odd and so confusing that any answer you give will tell us very little. The answers might also depend on seemingly irrelevant features of survey design (Kahneman & Knetsch, 1992; Sunstein et al., 2002). But importantly, there has been a great deal of progress with contingent valuation studies, responding to some of the concerns (Weimer & Vining, 2024). That progress, including the use of dichotomous choice, bears on monetization of benefits and costs to nonhuman animals (ibid.).

Let us bracket the complexities for the moment; I will return to some of them.[13] For government, the relevant risks usually are in the general range of 1/10,000 to 1/100,000. The calculation of VSL is a product of simple arithmetic. Suppose that workers must be paid $1,200, on average, to assume a risk of 1/10,000. If so, the VSL would be $12 million.

[12] For examples in an important, relevant, and unusually interesting setting, taken up below, see Williams (2013).
[13] I discuss some of them in Sunstein (2018).

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3. Statistical children

A continuing puzzle, to which agencies have given some attention, is the valuation of the lives of children (Raich et al., 2018). As we shall see, the underlying challenges greatly overlap with those raised by the valuation of nonhuman animals.

Suppose that a regulation would prevent the deaths of 20,000 people under the age of five. How shall we monetize the benefits? A tempting answer is to use the standard number; perhaps it is $12 million. But is that right? One problem is that people under the age of five have a large number of life-years left. Does that matter? Another problem is that most people under the age of five do not have money, which means that their willingness to pay, to reduce a statistical risk, is $0. It is self-evident that a child's life should not be valued at $0. There have been some efforts to elicit a parent's WTP to eliminate risks to children, and while the results are far from conclusive and must be taken with many grains of salt, at least some of them are in the general vicinity of people's willingness to pay to reduce risks to themselves (Williams, 2013; Raich et al., 2018; Robinson *et al.,* 2019; Consumer Product Safety Commission, 2023). If that is indeed so, should we therefore conclude that the value of a child's life is about $12 million?

That conclusion would run into two immediate objections. The first is that regulators ordinarily focus on the WTP of the person whose life is at stake, not on the WTP of people who care about that person. In ordinary cases, regulators do not supplement the $12 million figure with (say) a population-wide average of family members, friends, and others who would be willing to pay to avoid a statistical mortality risk faced by someone else. Very plausibly, that is a gap (Posner & Sunstein, 2005). The only point is that use of parental WTP would be a departure from standard practice.

The second and even more fundamental objection is that the number *does not include the welfare of the child*; it is limited to the welfare of the parents (even though the parents care about the welfare of their children). For this reason, there is some number, call it $X, that must be added to the $12 million figure, assuming that the number from the parents counts as well. What is $X? It is tempting to say that it is $12 million, on the theory that a child's life should not be valued less than the life of the median adult; but what is the foundation for that judgment?

It must be something like this. When agencies use WTP to value something, it is because WTP is the best available estimate of the welfare people would get from that something. If certain people would pay $800, and no more, for a laptop, we can plausibly conclude that the laptop is worth $800 to those people.[14] According to a standard view, mortality risks should be treated the same; people are willing to pay a specific amount, and no more, to eliminate such risks. Now suppose that someone does not have money. If they are willing to pay $0 for a laptop, it is not because they would obtain no welfare from the laptop. They might obtain a great deal of welfare from a laptop. How much? We do not know, because we do not have data.

If people who have no money are willing to pay $0 to eliminate a mortality risk, it is not because they would obtain no welfare from eliminating that risk. They might obtain a great deal of welfare from eliminating that risk. How much? We do not know, because we do not have data. If the average person would pay $100 to eliminate a risk of 1 in 100,000, perhaps

[14] There are some qualifications; the word "plausibly" buries them. For example, people might make "welfare forecasting errors" (Bronsteen et al., 2013).

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we can plausibly conclude that the VSL, for people who do not have money, is $10 million as well. In the case of children, ought we to say that it is $5 million or $20 million? We lack relevant data. But perhaps we can say that because of the large number of life-years, $20 million is closer to the mark than $5 million.

These issues have yet to be resolved. Here, in my view, is the basic problem. Regulators are treating protection against statistical risks as a commodity that people may or may not buy. If people are willing to pay $100, and no more, to eliminate a risk of 1 in 100,000, we can build on that fact for purposes of policy (Viscusi, 2018), certainly in cases in which regulation works as a forced exchange. But if children have no money, their willingness to pay $0 to eliminate a statistical risk tells us exactly nothing about the welfare benefit of providing them with protection against that statistical risk. We might do better to speak in terms of welfare directly (Bronsteen et al., 2013), though doing that creates serious challenges of its own (Viscusi, 2013; Sunstein, 2018, 2024). This point bears directly on valuation of mortality and morbidity consequences for nonhuman animals.

4. Nonhuman animals matter

If a regulation is expected to prevent 1,000 premature deaths of dogs, it is producing benefits, and the same is true if a regulation is expected to reduce 1,000 injuries to dogs or 1,000 illnesses in dogs. Under prevailing executive orders, agencies should disclose those benefits in their Regulatory Impact Analyses. E.O. 13563 (2011) states, "Each agency is directed to use the best available techniques to quantify anticipated present and future benefits and costs as accurately as possible. Where appropriate and permitted by law, each agency may consider (and discuss qualitatively) values that are difficult or impossible to quantify." Reduced harms to dogs count as "anticipated present and future benefits," and such reduced harms also count as "values that are difficult or impossible to quantify" (E.O. 13563, 2011).[15] This is so even if the reduced harms are not the main purpose of the regulation, and indeed even if the relevant statute does not make the reduced harms relevant to the agency's decision about what to do. A regulation that is designed to increase fuel economy will have a wide range of effects, some good and some bad, and all of them must be catalogued, even if they are not statutorily relevant. As we shall soon see, a central reason has to do with transparency and accountability.

To be sure, it would be possible to respond with the suggestion that E.O. 13563 has a background principle, to the effect that all benefits and costs are understood to be those for or to human beings, and only human beings. But why should that be taken to be the background principle? For some rules, any such background principle would be preposterous. Some statutes, such as the Endangered Species Act (1973),[16] the Animal Welfare Act (1966),[17] and the Marine Mammal Protection Act (1972),[18] are *specifically designed to protect the lives of animals.* Agencies are legally obliged to take those lives into account (and per Executive Order, to quantify and monetize the benefits of protecting them). In addition, agencies

[15] For example, the US Department of Agriculture's Animal and Plant Health Inspection Service described benefits to animal welfare as "unquantifiable" in its Regulatory Impact Analysis of a proposed rule regulating the importation of live dogs (Department of Agriculture, 2011).

[16] 16 U.S.C. §§ 1531–1544 (1973).

[17] 7 U.S.C. §§ 2131–2159 (1966).

[18] 16 U.S.C. §§ 1361–1407 (1972).

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standardly catalogue, and are required to catalogue, consequences of regulation that are not, under the relevant law, permissibly taken into account in deciding whether and how to proceed (such as costs, under some statutes that call for cost-blindness) (E.O. 13563, 2011). The reason for such cataloguing is accountability and transparency: If a regulation would cost a great deal, people should see that fact, even if the agency must proceed on a cost-blind basis. There is no sufficient reason not to say the same thing with respect to benefits for or costs to nonhuman animals.

Must agencies also consider those benefits or costs in deciding whether and how to proceed? There are three possibilities. The first is that Congress has indeed forbidden them to do so; benefits to nonhuman animals are a statutorily irrelevant factor. The second is that Congress has required them to do so; agencies are legally obliged to consider those benefits (as in the cases of the Endangered Species Act, the Animal Welfare Act, and the Marine Mammal Protection Act). The third is that Congress has given agencies discretion about whether or not to do so. If an agency has discretion to consider benefits to nonhuman animals but fails to do so, there is a good argument that it would be acting arbitrarily under the Administrative Procedure Act.[19] What would be the reason for failing to consider savings, in terms of mortality and morbidity, to nonhuman animals?[20] Why would it be rational to fail to do so?

5. Quantification and monetization

Quantification itself may or may not be challenging. In some cases, the agency might know that its regulation will prevent some number of premature deaths of nonhuman animals; but it will not know what that number is. In other cases, the agency might be able to specify that number, or at least identify lower and upper bounds. In either case, the agency should say what it knows.

The hardest question involves monetization.[21] If a regulation would prevent 1,000 premature deaths of dogs, what is the monetized benefit? It might be tempting for regulators to refuse to answer that question on the ground that they lack adequate data. We could imagine an agency saying that it simply cannot turn the lives of dogs into monetary equivalents, and therefore treating the relevant benefits as nonquantifiable (Sunstein, 2014). If they do so, they might be fulfilling their obligation under OMB Circular A-4, which is to disclose the relevant benefits and quantify them (only) to the extent feasible (Office of Management and Budget, 2023). And if agencies seek to consider those non-quantifiable benefits in deciding how to proceed, they might engage in some kind of breakeven analysis: What is the lowest monetary equivalent that would justify the costs? Suppose that a proposed regulation would cost $600 million and deliver $500 million in benefits to human beings; suppose, too, that the regulation would prevent a specified number of deaths of dogs. Would a lower bound on those savings exceed $100 million? If so, the

[19] *Michigan v. EPA*, 576 U.S. 743 (2015), seems to suggest that if agencies have discretion whether to consider costs, they are acting arbitrarily if they refuse to do so. For general discussion, see Stawasz (2020), and especially his "Strong Claim."

[20] Consider *Ohio v. United States Department of the Interior*, 880 F.2d 432, 462–64 (D.C. Cir. 1989), in which the court rejected an agency's decision to limit the value of natural resources to their market price and wrote: "From the bald eagle to the blue whale and snail darter, natural resources have values that are not fully captured by the market system."

[21] For valuable discussion of the Value of a Statistical Animal Life, see Stawasz (2020).

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agency should proceed. Would an upper bound on those savings be less than $100 million? If so, the agency should not proceed.

If agencies seek to monetize benefits or costs to nonhuman animals, they might want to consider the fact that many such animals are traded on markets. A Labrador Retriever puppy might sell for $2,000 or more. A German Shepherd puppy might sell for $1,500 or more. A Great Dane puppy might sell for $1,000 or more. Horses can be bought for $500 to $3,000, and a show horse might cost $250,000 or more. One problem is that people develop emotional attachments to animals whom they own, which means that such numbers will greatly understate (human) valuation. I have two Labrador Retrievers, and I would not sell them for all the tea in China. (Well, there might be some number for which I would sell them, but maybe not, and I really do not like thinking about it.) It might be possible to use market numbers to establish lower bounds, noting, once more, than the welfare of the animal itself is not the same as the welfare of the human being who cares about the animal.

Alternatively, the agency might rely on a contingent valuation or stated preference study, turning nonhuman lives (or morbidity gains) into monetary equivalents. This is a less novel idea than it might seem; agencies have pointed to "nonuse values" on multiple occasions, and sometimes they have attempted to monetize them. For example, the EPA did exactly that in considering the economic values associated with protection of fish in connection with its 2014 cooling towers rule (Environmental Protection Agency, 2014). The EPA emphasized both quantifiable and nonquantifiable benefits. It said that "significant benefits are associated with the rule," and that the "benefits include the annual reduction in impingement mortality of 652 million age-one equivalents for existing units. There are, in addition, other important benefits, many of which EPA cannot quantify. These benefits include effects on many shellfish species and nonuse values associated with the vast majority of fish and shellfish" (Environmental Protection Agency, 2014).

In particular, the EPA emphasized "[n]onuse benefits," defined as "those benefits that are independent of any current or anticipated human use of a resource," reflecting "the value the public places on something simply as a result of its existence or natural functioning" (Environmental Protection Agency, 2014). It stated that the "nonuse value includes individuals' WTP (willingness to pay) for the protection of fish based on a sense of altruism, stewardship, bequest, or vicarious consumption; and their support of ecosystem stability and function" (Environmental Protection Agency, 2014). The EPA sought to estimate nonuse benefits in part through "an original stated preference survey to estimate total WTP for improvements to fishery resources affected by impingement mortality and entrainment" (Environmental Protection Agency, 2014).

Nonuse values or benefits have been mentioned in other agency actions that affect nonhuman animals. Examples include a National Oceanic and Atmospheric Administration (NOAA) notice involving a dam removal (National Oceanic and Atmospheric Administration, 2012), a proposed EPA rule regulating wastewater discharge from the metal industry (Environmental Protection Agency, 2001),[22] and a proposed EPA rule updating waste limits from steam electric power generation (Environmental Protection Agency, 2023). As with the EPA's cooling towers rule (Environmental Protection Agency, 2014), agencies sometimes refer to, consider, or engage in contingent valuation studies to estimate the value of nonuse

[22] Note, however, that the EPA estimated nonuse benefits as half of the recreational use benefits instead of using an independent WTP analysis.

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benefits.[23] The National Oceanic and Atmospheric Administration has asserted more broadly that with regard to endangered species protection, "[n]on-market valuation of species, habitats, and environmental amenities is an accepted and standard practice" that is central to regulatory decision-making because "non-market, non-use, and passive-use economic values represent relevant, and very often significant, aspects of the benefits deriving from Federal actions pertaining to [Endangered Species Act] listings and critical habitat designation" (National Oceanic and Atmospheric Administration, 2011).[24]

Notably, OMB Circular A-4 broadly approves of the use of stated preference studies: "Stated preference methods (SPM) have been developed and used in the peer-reviewed literature to estimate use and non-use values of goods and services in many contexts. They also have been widely used in regulatory analyses by Federal agencies, in part because these methods can be employed to address a wide variety of goods and services that are not easy to study through revealed preference methods" (Office of Management and Budget, 2023). Puzzlingly, the circular does not refer to nonhuman animals in this context.

Outside of federal rulemaking, research remains in an early state, but important data come from an effort to elicit a Value of a Statistical Dog Life (VSDL) (Carlson *et al.,* 2020; also relevant are Bennett & Ralph, 2003, Norwood & Lusk, 2011, and Weimer & Vining, 2024). Carlson et al. design and present a series of careful contingent valuation studies. In one of them, people's companion animals are said to be subject to a stated mortality risk, and the question is how much people would be willing to pay for a vaccine that would reduce that risk. More specifically, people are asked:

> Imagine that your out-of-pocket costs to have [name vaccinated against the new strain of influenza would be $(X). This is the amount you would have to pay whether or not you have either pet insurance or a prepaid plan with a veterinarian. Remember that this amount of money would not be available to you to use for other expenses such as grocery bills, utilities, recreation, or savings. Would you pay $(X) to purchase the vaccine for [name]?

Variations on this question were designed to allow for sensitivity analyses and robustness checks. In their base case, Carlson et al. find a VSLD of between $5,000 and $9,000, with a mean of $6,700 and a mean Value of a Statistical Dog Year (VDYL) of $1,250. A quantitative scope test, with a smaller reduction in mortality risk, finds a mean VSLD of $10,050 and a mean VDLY of $1,880.

Coauthors of that study, Weimer and Vining, separately analyze and explore VSDL (Weimer & Vining, 2024). Noting that human beings frequently make tradeoffs affecting the mortality risks faced by their dogs, they urge that contingent valuation studies can be used to derive plausible estimates. They also explain how their own study avoided some of the problems with older contingent valuation studies by carefully presenting probabilities, using the dichotomous choice method, and including scope tests. Much more can and should be done in this vein. If the goal is to come up with some number, it would be a major advance to use methods of this kind. At the present time, agencies might start with $10,000 or so as a

[23] For example, the Department of the Interior sought to conduct a survey to quantify the nonuse value of changes to the Klamath River damming system. The agency proposed a survey that used "focus groups and cognitive, one-on-one interviews" to best "estimat[e] nonuse values" (Department of the Interior, 2010).

[24] In the same rulemaking, the National Oceanic and Atmospheric Administration noted that it was running a contingent valuation study to assess the dollar value associated with protecting the endangered whale species (National Oceanic and Atmospheric Administration, 2011).

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plausible lower bound. But there is a natural objection. Is the life of a dog plausibly worth just 1/1,000 that of a person? Would it be worth killing 1,000 German Shepherds to save one human being?

Whatever the answers to these questions, the use of contingent valuation studies to value the lives of dogs runs into the same concern as the use of such studies to value the lives of children: We are obtaining the valuation of those who care about those at risk, and not of those who are at risk (Stawasz, 2020). Like children, dogs do not have money, and so they have no willingness to pay. But their welfare is at risk.

Can that be measured? One issue is tractable. Dogs live less long than human beings, which means that fewer life-years are at stake. We might be able to estimate the number of dog-years saved by a regulation. (Something similar might be said for nonhuman animals other than dogs.) But what is the welfare loss for a dog who dies prematurely, or who lives with some illness or injury? (Something similar might be asked about nonhuman animals other than dogs.) That is a very difficult question to answer. For some welfarists, the answer might depend on an effort to measure subjective well-being (Kahneman & Krueger, 2006; Bronsteen et al., 2013; Sunstein, 2018). With respect to human beings, such efforts remain highly controversial (Viscusi, 2013). With respect to nonhuman animals, we do not yet have adequate tools.

6. Paths forward

Many rules produce health or safety benefits for animals; sometimes agencies identify and consider such benefits, and sometimes they do not.[25] A central dividing line appears to be the law: If the law requires agencies to focus on harms to animals, they are likely to do exactly that;[26] if the law does not require agencies to focus on harms to animals, agencies tend not to focus on those harms, even if the action they are taking would reduce or add to them.[27] And when agencies do identify and consider the relevant harms or benefits, their treatment tends to be brief and qualitative (Stawasz, 2020).

My main claim has been that agencies should identify and catalogue the benefits of reducing harms to nonhuman animals, certainly if the law requires agencies to attend to those benefits, and even if the law does not require agencies to do so. At a minimum, agencies should attempt to quantify benefits and costs to nonhuman animals even if they cannot monetize them. Breakeven analysis might turn out to be helpful here. With the help of contingent valuation studies, agencies should also attempt to monetize those effects. Unless the governing law forbids them to catalogue, quantify, and monetize benefits for and costs to nonhuman animals, there may well be an argument that agency silence, on those benefits and costs, is legally arbitrary,[28] certainly if cataloguing, quantifying, and monetizing those

[25] For a glimpse at existing practice, see Stawasz (2020).

[26] For example, a National Oceanic and Atmospheric Administration rule proposed under the Marine Mammal Protection Act specifically mentioned the rule's "benefit to the dolphins" receiving protection (National Oceanic and Atmospheric Administration, 2016).

[27] For example, a rule jointly proposed by the Animal and Plant Health Inspection Service and Centers for Disease Control and Prevention regulated toxins that were predicted to affect animals, but the discussion of the rule's benefits in the Regulatory Impact Analysis focused on how the agriculture industry and public health would be affected (Department of Agriculture & Department of Health and Human Services, 2011).

[28] The reason is the requirement, now taken to be part of arbitrariness review, that agencies must offer detailed explanations for their choices (*Motor Vehicle Manufacturers Association v. State Farm Mutual Automobile Insurance Co.*, 463 U.S. 29 (1983)). Admittedly, it is not clear that a failure to consider, quantify, and monetize

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benefits and costs is feasible. And if benefits for or costs to nonhuman animals are significant, and if agencies are permitted by law to consider them, their failure to do so should probably be counted as arbitrary as well.[29]

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benefits for or costs to nonhuman animals would run afoul of that requirement; the answer might well depend on what count as relevant considerations under the governing statute. If the welfare of animals must be counted, the failure to do so would be unlawful; if the welfare of animals may not be counted, the failure to do so would be lawful; if the welfare of animals may be counted, in the discretion of the agency, the failure to do so would require a nonarbitrary explanation. See also note 29 below. As a matter of law, these may turn out to be complicated matters. It is much easier to suggest that a failure to consider, quantify, and monetize those benefits and costs would run afoul of E.O. 13563, which is not subject to judicial review, but which is subject to enforcement by the Office of Information and Regulatory Affairs.

[29] It is self-evident that agencies cannot fail to consider the relevant benefits or costs if Congress has required them to do so. If Congress has given agencies discretion to consider benefits or costs to nonhuman animals, and if agencies fail to do so, that failure might well be deemed arbitrary by analogy to *Michigan v. EPA*, 576 U.S. 743 (2015), where the Court ruled that a failure even to consider costs is "unreasonable" where the agency has discretion to do so. A failure even to consider benefits for or costs to nonhuman animals should similarly be deemed unreasonable. At least this is so if the agency has not given an explanation for that failure. And what would that explanation look like?

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