**Social Bias, Not Time Bias**

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Abstract

People seem to have pure time preferences about trade-offs concerning their own pleasures and pains, and such preferences contribute to estimates of people’s *individual time discount rate*. Do pure time preferences also matter to interpersonal welfare trade-offs, including those concerning the welfare of future generations? Most importantly, should the *intergenerational time discount rate* include a pure time preference? *Descriptivists* claim that the intergenerational discount rate should reflect actual people’s revealed preferences, and thus it should include a pure time preference. *Prescriptivists* claim that the intergenerational discount rate should be based on moral analysis, and thus they (often) claim that the rate of pure time preference should be zero. I argue that regardless of which view is correct, a focus on pure time preference is misplaced. First, the most plausible interpretation of descriptive preferences for intergenerational trade-offs is that people are *socially biased* and not *time biased*. Second, social bias is superior to time bias as a prescriptive reason to discount the welfare of future people. Third, recent advances in measuring social bias as a *social discount rate* make social bias a viable replacement for time bias in economic analyses of intergenerational welfare trade-offs.

*Keywords: Time bias, time discounting, social bias, social discounting, future generations, intergenerational discounting, social discount rate.*

If you’re reading this, you probably write your own academic papers, and you probably think that authoring an academic paper is a valuable activity. But perhaps you do not find writing such papers an exceptionally pleasurable experience. Of course, publishing papers can be valuable because it helps to clarify one’s thoughts or advance one’s personal interests, but at least a small part of the value has to do with social aims. We expect that what we write has a chance to benefit other people, in some way, and that some of these people may not be alive at the same time as we are.

When people do value activities purely for their own pleasure — i.e., when they assign events individual *hedonic value* — their attitudes reveal a *time preference*. People care not just about how pleasurable an experience will be but also where that pleasure will occur in relation to the present. Specifically, this time preference manifests a *near bias*: people prefer pleasurable experiences to be near rather than distant. Sometimes, near bias results in a preference for less pleasure overall: we prefer an experience that is less pleasurable but near to one that is more pleasurable but distant.[[1]](#footnote-1)

Does our concern for social aims — including our concern for how things will go for humanity after we are dead — manifest that same time preference? For example, do we tend to care more that our activities benefit temporally nearer people, instead of temporally more distant people, even if the benefit is smaller? And if so, is this a justified preference?

Social scientists and philosophers debate the inclusion of time preference — more specifically, a *pure rate of time preference* — in discounting analyses relevant to the welfare of future generations. Much of the debate turns on whether one takes a *prescriptivist* or *descriptivist* perspective. Prescriptivists argue that whether and how time preference should

feature in discounting analyses should be determined by ethical theorizing and not people’s actual preferences. According to the prescriptivist Robert Goodin (1982: 54–5), “There is no more reason for public policy to reflect [actual consumer time preference] than there is for it to reflect people’s incapacity to think rationally about large numbers or to perform fancy arithmetic.” Descriptivists, in response, contend that principles of democracy and consumer sovereignty cut against the prescriptivist viewpoint, and that what the prescriptivist proposes amounts to “an authoritarian rejection of individual preferences” (Marglin, 1962: 197).[[2]](#footnote-2) They claim that society’s revealed time preferences must be included in discounting analyses.[[3]](#footnote-3)

In this paper, I argue that the focus on the justifiability and prevalence of pure time preference and a resulting time bias is misplaced for both the descriptivist and prescriptivist viewpoints on intergenerational discounting. Instead, the focus should be on the justifiability and prevalence of *social preferences* and a corresponding *social bias*. A social bias is, roughly (for now), a systematic diminishment of concern for the welfare of others based on increasing perceived social distance. I assess the prospects for replacing time bias with social bias in three domains: in models of people’s descriptive preferences, in debates over the normative justifiability of discounting the welfare of future people, and in economic dis- counting analyses. In each instance, the prospects are bright: substituting the concept of time preference with that of social preference allows for both more relevant debates and more plausible descriptive models.

In Section 1, I explain and compare the concepts of time and social bias and present two powerful considerations against the current focus on time bias. Specifically, psychological data suggests that time bias is a *first-person hedonic* phenomenon that concerns *experienced time*, while intergenerational discounting is a *third-person* or *non-hedonic* phenomenon that concerns *objective time*. Then, in Section 2, I present the philosophical argument from arbitrariness: time bias concerning future generations is arbitrary while social bias is not. If time bias is arbitrary and social bias is not, and experimental evidence does not support the idea that people are time biased, then social bias offers the most charitable interpretation of people’s descriptive preferences. If social bias is the most charitable interpretation of people’s descriptive preferences, then prescriptive arguments concerning intergenerational time discounting should focus on the normative impermissibility of social bias and not time bias. Finally, in Section 3, I discuss the feasibility of replacing time bias with social bias in economic analyses, by replacing time discounting with social discounting.

1. *Distinguishing Time Bias from Social Bias*

Before you lie the cookies; they are delicious. You can either have one cookie now or two cookies ten minutes from now. Which do you prefer? In isolation, having two cookies is better, but is it better enough to warrant waiting ten minutes?

Of course, many considerations could affect your preference. You might be skeptical that you will receive two cookies if you wait. Or you might suspect that you won’t be as hungry ten minutes from now. Or you might predict that you won’t enjoy cookies as much in ten minutes. There are clearly many considerations that might favor one cookie sooner (which we will survey in Section 1.2), but is *temporal nearness* one of them? That is, do you feel some pull toward having one cookie now, *just because* the pleasurable experience is nearer in time?

You now face a more consequential choice. Before you lie plans for two conflicting long- term engineering projects. The first will result in a moderate benefit to the next generation of humanity. The second will result in a very large benefit to the people who live several generations from now. Is this choice like that between the cookies? While, all else equal, the larger benefit would be better, it requires “waiting” several generations (though, of course, only “humanity” will “wait” for it—no person will). Is there a pull toward the less good benefit just because it is nearer in time?

A near-biased agent prefers pleasures to be nearer and pains to be more distant. In the cookie case, the single cookie attracts a near-biased agent because of its temporal nearness, and this affects decision making when the agent prefers a nearer experience over an experience that is at least as good in terms of properties other than nearness. Greene and Sullivan (2015: 948) define the manifestation of near bias like this:

An agent *S* is biased toward the near with respect to pleasure iff for two exclusive future experiences, *E1* and *E2*, where *E2* is at least as pleasurable as *E1* (adjusted for the subjective probabilities of the events occurring), *S* prefers *E1* because it would occur nearer to the present.

We can define the manifestation of near bias in the case of benefits to future generations like this:

An agent *S* is biased toward the near with respect to benefits to future generations iff for two exclusive future benefits, *B1* and *B2*, where *B2* is at least as good as *B1* (adjusted for the subjective probabilities of the events occurring), *S* prefers *B1* because it would occur nearer to the present.

An agent near biased about pleasures finds a pleasurable experience more preferable the more temporally near it occurs, all else equal. Likewise, an agent near biased about benefits to future generations finds a benefit more preferable the more temporally near it occurs, all else equal. The crucial question, for our purposes, is whether the latter sort of agent — the agent near-biased about benefits to future generations — is the proper focus of descriptive and prescriptive inquiry into intergenerational discount rates. Current prescriptive and descriptive inquiry assumes that the answer is “yes.”

* 1. *Mismatch Between Theory and Psychological Data*

One of the most compelling reasons to doubt that near bias is the proper focus of intergenerational discounting theory is that time bias is a *first-person hedonic* phenomenon that concerns *experienced time*, whereas intergenerational discounting is a *third-person* or *non-hedonic* phenomenon that concerns objective time. Let’s consider these elements one at a time.

In the experimental literature on time bias, first-person preferences are preferences concerning the timing of events for oneself, while third-person preferences are preferences concerning the timing of events for another person. Experiments that compare first-person to third-person preferences show either elimination of time bias (Caruso et al., 2008) or significant reductions in time bias (Greene, Latham, et al., 2021).

Hedonic events are good or bad *experiences*, whereas non-hedonic events are good or bad events that are not experiences.[[4]](#footnote-4) So, for example, the event of your friend talking about you behind your back is a non-hedonic event, while the experience of pain and outrage upon learning that this has happened is a hedonic event. Experiments that compare preferences concerning hedonic and non-hedonic events show significant reductions in time bias for non-hedonic events (Greene, Holcombe, et al., 2021; Greene, Latham, et al., 2021).

The diminishment of time bias for first-person preferences and non-hedonic events should not surprise philosophers. Philosophers have long claimed that there is a *first/third-person asymmetry* in time-biased preferences (Brink, 2010: 378–9; Dougherty, 2015: 3; Greene and Sullivan, 2015: 968; Hare, 2008, 2013: 509–10; Parfit, 1984: 181). This is the claim that time bias is a first-person-only phenomenon. Philosophers have also posited a *hedonic/non-hedonic* asymmetry in time-biased preferences (Brink, 2010: 378; Dougherty, 2015: 3, fn. 4; Hare, 2013). This is the claim that time bias is a hedonic-only phenomenon.

Preferences for events that occur after one is dead are naturally interpreted as third-person hedonic. People worry about the experiences of future generations, and how current actions will affect those experiences positively or negatively. Alternatively, it is possible to interpret such preferences as either first-person or third-person non-hedonic. People care about the future of humanity after their death — e.g., hoping that humanity achieves great things, like attaining wisdom or spreading out across the galaxy — but perhaps they do so without referencing the positive or negative experiences of those who will live.

While we can remain agnostic about whether preferences relevant to intergenerational discounting are third-person hedonic, first-person non-hedonic, third-person non-hedonic, or some combination, we can be confident that such preferences are not first-person hedonic.[[5]](#footnote-5) And yet, philosophers have long posited, and more recently empirical research has confirmed, that time bias is mostly a first-person hedonic phenomenon. This is a mismatch between the theory of intergenerational discounting and the psychological data; i.e., the focus on time bias in theories of intergenerational discounting fails to match what the psychological data tells us.[[6]](#footnote-6)

Another mismatch is that time bias concerns *experienced time* and not *objective time*. To see this, consider a variant of the cookie case above. Again, you can have one delicious cookie now or two similar cookies in the future. However, this time, let’s raise the stakes and imagine that you have to wait *ten hours* for the two cookies. Do you feel some pull toward having the one cookie just because of its temporal nearness? However, unlike before, let us now imagine that you are about to step into a *stasis chamber* for the next ten hours. You have experienced the chamber many times before, and you know that the stasis is consciousness-free. Even though ten hours will elapse in objective time, you know that, subjectively, it will feel like only a few seconds have passed.

The effect of temporal nearness on one’s preferences is not the same with and without stasis. Yet, if near bias were a reaction to objective time, then there should be no difference between two cookies in ten hours with and without stasis, since the objective time is the same. If near bias were a reaction to objective time, it should also matter a great deal whether the stasis lasts for ten minutes, ten hours, twenty hours, forty hours, and so on. But all this is hard to believe, given that in every situation it feels like you’re getting two cookies a few seconds later.

For a mundane example of the stasis phenomenon, consider a child who requests an earlier bedtime on Christmas Eve. Going to bed early does not change the objective time until Christmas morning; only experienced time changes. Like stasis, this example suggests that models of hedonic time discounting that reference objective time are *only* satisfactory in cases in which there is a correlation between objective and experienced time.

That near bias is intimately connected to our experience of the passage of time has been noted before. Near bias, some have claimed, is concerned with the experience of waiting, and not the passage of objective time. For example, Schelling (2000, 234) writes, “The alleged inborn preference for earlier rather than later consumption is exclusively concerned with the consumer’s impatience with respect to his or her own consumption.” To be *patient*, one must endure *experienced time*. If one has no experiences, then patience is not a factor.[[7]](#footnote-7)

When one is not alive, one does not experience the passage of time. Past the point of death, there is only objective time by which to measure trade-offs, and thus no correlation between experienced and objective time. If time-preference analysis is only appropriate when there is a correlation between experienced and objective time, then it is inappropriate for intergenerational trade-offs.

In sum, people’s near bias operates on *experienced time* for *first-person hedonic* goods. Near bias in relation to intergenerational trade-offs would operate on *objective time* for *third-person* or *non-hedonic goods*. This is a mismatch: the observations that motivate the existence of near bias would suggest that people are not near biased about intergenerational trade-offs.

* 1. *From ‘Near Bias’ to ‘Time Discounting’*

The above considerations are powerful by themselves. However, more needs to be said to clarify the scope of the potential inadequacies of the near-bias model applied to intergenerational trade-offs. First, we must connect the philosophers’ concept of ‘near bias’ to the social scientists’ concept of ‘time discounting.’

Social scientists attempt to *quantify* people’s near bias with the concept of time discounting. To do this, they use a mathematical function to model how people’s preferences change with increasing or decreasing temporal distance between the event in question and the present.

There is a crucial difference between the discounting of welfare, or *utility* — which John Broome (1999: 46) calls “pure” discounting — and the discounting of commodities used by economists in analyzing potential investments. The latter type of discounting need not involve pure discounting — it might only involve the fact that invested capital supports greater consumption in the future. In his seminal paper, Ramsey (1928: 553) notes that the “rate of discounting future *utilities* must, of course, be distinguished from the rate of discounting future sums of money. If I can borrow or lend at a rate of *r* I must necessarily be equally pleased with an extra £1 now and an extra £(1+*r*) in a year’s time, since I could always exchange the one for the other.” Accordingly, when this paper discusses time discounting, it aims to discuss pure discounting in the sense Broome and Ramsey identify.

Furthermore, for a phenomenon to be called pure *time* discounting, it should solely concern the influence of temporal properties on our preferences. Therefore, when identifying pure time discounting one must separate the influence of probabilities from the influence of temporal nearness. For example, since distant experiences are typically less certain than near ones, it would make sense for even a *temporally neutral agent* — who does not care at all about temporal nearness in itself — to tend to prefer nearer pleasures to more distant ones. Therefore, an agent can be understood to engage in pure time discounting only when their preference for nearer pleasures would persist even if the probabilities were equalized.

There are several other factors that may influence our intertemporal preferences for pleasures and pains but do not concern temporal nearness. An agent might prefer near pleasures (and distant pains) for reasons concerning personal identity (e.g., the agent might be skeptical that there will be a sufficient connection between their current self and the self that experiences the distant pleasure or pain).[[8]](#footnote-8)

Such an agent would care about *identity properties* and not *temporal properties*. Another agent might have “global” preferences about the structure of their life (e.g., they prefer an improving life to a degrading one, regardless of the total amount of pleasure in each life). Such an agent would care about the *overall sequence of events*, and not the temporal nearness of the events.[[9]](#footnote-9)

Those are all caveats about first-person hedonic time discounting. As we’ve seen, time discounting for intergenerational trade-offs concerns events that are third-person or non- hedonic, over sequences of time that are not experienced. A discount rate that aims to quantify preferences for events that will only be experienced by future generations — such as long-term economic or environmental goods — is not capturing preferences an individual has for their own experiences. Intergenerational time discounting is likely to have these potential confounds and more — most notably, the influence of social bias.

* 1. *Problematic Results of Empirical Research into First-Person Time Discounting*

Now that we have covered the relationship between near bias and time discounting, we can turn to a second reason to doubt that near bias is the proper focus of intergenerational discounting theory: the problematic results of empirical research into first-person time discounting.

Researchers have failed to agree, even in broad terms, on an average time discount rate for first-person hedonic time discounting. In major meta-analyses, Frederick et al. (2002) and Soman et al. 2005) reported tremendous variability in estimates of people’s average discount rate. In their review, Frederick et al. (2002) found that experiments estimate an annual discount rate between -6% and infinity, with no clustering of moderate results. That is to say, experiments suggest that people are, on average, anywhere from *anti-near-biased* (negative rate of time discounting) to *absolutely near biased*, to the extent that they don’t care about future experiences whatsoever (infinite rate of time discounting). Furthermore, there was no evidence of progress: the variability of the experimental results did not decrease over time. A more recent review by Story et al. (2014) comes to the same conclusion.[[10]](#footnote-10)

Soman et al. (2005: Sections 1.2 and 2.2) conclude that these results make it clear that researchers need to abandon the “elegant simplicity” of the economic discounted-utility model in favor of psychological approaches. As Loewenstein (1987: 666-7) and Frederick et al. (2002: 352-3) point out, this was the predominant view of economists before the introduction of the discounted-utility model in 1937. Frederick et al. write, “When the [discounted-utility] model eventually became entrenched as the dominant theoretical framework for modeling intertemporal choice, it was due largely to its simplicity and its resemblance to the familiar compound interest formula, and not as a result of empirical research demonstrating its validity.”

Influenced by these realizations, many researchers over the last decade have abandoned the idea that pure time preference is the major determinant of intertemporal choices, even in the *first-person hedonic* case. In third-person and non-hedonic cases, there is even more reason to do this. There has been less research, of less quality, on the empirical realities of the third-person and non-hedonic preferences relevant to intergenerational discounting, and, as we’ve seen, what research there is seems to indicate that pure time preference is not a factor.

* 1. *Defining Social Bias*

With respect to benefits to future generations, a social bias can be defined like this:

An agent *S* is socially biased with respect to benefits to future generations iff for two exclusive future benefits, *B1* and *B2*, where *B2* is at least as good as *B1* (adjusted for the subjective probabilities of the events occurring), *S* prefers *B1* because it concerns people of greater perceived social closeness.

There are two ways to understand the concept of social closeness and how it results in social bias (just as there are two ways to understand temporal nearness and how it results in time bias). First, social closeness can be understood as a catch-all for the factors that influence our preferences for interpersonal trade-offs that seem, intuitively, to depend on social factors and not probabilistic, temporal, or global sequence-based factors. People commonly crave companionship with some but not others; they empathize more with some and less with others — these kinds of factors create differentials in perceived social connections, and these perceived connections influence choices concerning interpersonal trade-offs. In this way, “social bias” is similar to a general and intuitive concept of “time bias” that refers to all the ways temporal nearness can influence people’s decisions.

A second way to understand social closeness is as a technical concept appropriate for experimental studies calculating a rate of *social discounting* (discussed in more detail in Section 3). In such studies, participants create a ranked list of people “closest to them” and consider various interpersonal monetary trade-offs. In this way, social bias is similar to a technical concept of time bias that concerns the influence of temporal nearness on monetary trade-offs and uses people’s responses, or actual behavior, to calculate an average rate of discount. Just as with decreasing temporal distance, people are more willing to sacrifice their monetary payoffs with decreasing social distance. Thus, both time and social bias, in the narrow sense appropriate for discounting analyses, concern the average rate of discount for a particular type of good and a particular perspective on temporal nearness or social closeness.

This paper claims that social bias should be the primary focus of both descriptive and prescriptive inquiry concerning intergenerational discount rates. This is true regardless of whether we are talking about time and social bias in a broad intuitive way or a narrow technical way. One reason supporting this claim is that *the determinants of social bias cross the life/death boundary*. As we’ve seen above, the empirical and philosophical research suggests that this is not true of time bias.

In the next section, we turn to the arbitrariness argument against time bias, and show how this argument further motivates replacing time bias with social bias in both descriptivist and prescriptivist analyses.

1. *Time Bias Applied to Future Generations is Arbitrary*

The environmental issues that preoccupy us today concern benefits and harms over long timescales. Thus, economic models concerning environmental issues are an excellent place to look for time discounting that is distinctly intergenerational. For example, consider the United States Environmental Protection Agency’s discussion of discounting in their *Guidelines for Preparing Economic Analyses*. It states, “Discounting reflects: (1) the amount of time between the present and the point at which these changes occur; (2) the rate at which consumption is expected to change over time in the absence of the policy; (3) the rate at which the marginal value of consumption diminishes with increased consumption; and (4) *the rate at which the future utility from consumption is discounted with time*” [6-2, emphasis added]. Of the things discounting reflects, according to the EPA, (1-3) do *not* express pure time preference, whereas (4) may express pure time preference — and potentially intergenerational pure time preference — because it suggests that utility itself be adjusted on the basis of temporal nearness.

The inclusion of a pure time preference in the guidelines is worrying because almost all philosophers, and many economists, regard pure time preference as arbitrary. Sidgwick (1884: 414), for example, claimed that “the time at which a man exists cannot affect the value of his happiness from a universal point of view.” The economist R. F. Harrod (1948: 37–40) identified pure time discounting as a “human infirmity.” More recently, in a major review of the economics of climate change commissioned by the United Kingdom government, the economist Nicholas Stern (2007: 31) writes that we should treat the welfare of future generations “on a par with our own.” Stern claims that we should not discount utility on the basis of time but only uncertainty, and he takes this view to be supported by all economists with a strong interest in philosophy. [[11]](#footnote-11) Indeed, Ramsey (1928) developed the framework for applying a temporal discount rate to future utility,[[12]](#footnote-12) and even hethought it was unjustified. He claimed that any impulse toward pure time discounting results from “weakness of the imagination” (Ramsey, 1928: 543).[[13]](#footnote-13)

The EPA, like most governmental agencies, reacts to these worries by adopting a neutral view about the *justifiability* of intergenerational time preference, writing: “Clearly, economics alone cannot provide definitive guidance for selecting the ‘correct’ ... social rate of time preference” (6-12). However, if the EPA seriously thinks that economics does not motivate the inclusion of an intergenerational pure time preference, then the only explanation for including it in the guidelines would be a commitment to the descriptivist perspective. But why assume that there exists intergenerational time preference *as a descriptive fact*? How can that be justified?

Granted, if there were good experimental data showing that people tend to have an intergenerational time preference, even though such a preference is arbitrary, then assuming that people are time biased about intergenerational trade-offs would be justifiable. However, as we saw in the previous section, experimental studies do not decide between time and social bias descriptively. If anything, the descriptive data we have seems to suggest that perspectives on intergenerational trade-offs tend not to be subject to time bias. What reason is there, then, to include pure time preference as a guideline?

I call the current dominant paradigm the *maximum-uncharity view*:

The view that people approach intergenerational trade-offs with a pure time preference assumes, with little to no support from experimental data, that people are arbitrary and irrational.

Suppose we were to look at the situation with a beginner’s mind, without the baggage of many years of research into mathematical techniques that allow for the inclusion of a pure time preference in discounting analyses (developed by people, as with Ramsey, who did not themselves believe that their application is justified). In that case, I doubt that we would continue to feel a pull toward the maximum-uncharity view. When forming hypotheses, it is bad to privilege interpretations on which people are arbitrary unless there are good reasons to think otherwise. In this case, there are no such reasons. Since it is bad to privilege interpretations on which people are arbitrary without good reason, and such reason is lacking in this case, we should seriously consider the possibility that discounting analyses, even from the descriptivist point of view, would do a better job of capturing common attitudes toward intergenerational trade-offs if they incorporated some alternative to time bias that is more reasonable. That alternative is social bias.

The arbitrariness of pure time discounting is most apparent when the concept is applied to very long time frames. Cowen and Parfit (1992: 147), for example, point out that a discount rate of just five percent would make a death next year count for more than a billion deaths in four hundred years. Perhaps this phenomenon is even more outrageous when we look backward. Consider Cowen and Parfit’s (1992: 145) question: “Imagine finding out that you, having just reached your twenty-first birthday, must soon die of cancer because one evening Cleopatra wanted an extra helping of dessert. How could this be justified?”

An explanation focusing on social bias answers Cowen and Parfit’s question without invoking arbitrariness. Cleopatra might favor herself over those with whom she feels socially distant, but her social distance to someone living in 1522 is about the same as it is to someone living in 2022. Thus, Cleopatra presumably would have the same attitude toward the dessert/death trade-off whether the person who would die lives in 1522 or 2022. It seems implausible, on its face, that Cleopatra would care at all about the 500-year time lag. It is far more plausible that her attitude would be sensitive to whether a person is royalty or a mere commoner. Might Cleopatra choose to forego dessert to save the life of a *future queen* living in 2022, but not that of a mere commoner living in 1522? What about a queen living in 2522? It is easy to imagine that these social relations would have an impact and that the time relations would not.

I am not claiming that there is no possible way to avoid unintuitive consequences by modeling diminishment of concern in relation to objective time. Indeed, researchers have explored, and continue to explore, sophisticated mathematical models focusing on time distance that attempt to capture intuitions like those displayed in the Cleopatra case. My point here concerns the *initial motivations* for this enterprise. If people do not react to time distance in showing diminishment of concern, and instead react to social distance, then it is likely that descriptive models that focus on time distance will be more complex and less explanatory than descriptive models that focus on social distance.[[14]](#footnote-14) They certainly cannot capture the intuition that Cleopatra might be willing to sacrifice for a queen but not a commoner.

Let’s look at another thought experiment involving the source of value with which we started: philosophical inquiry. This is a source of value well-suited to speak directly to readers of this paper. Moreover, the value one places in studying philosophy often seems to depend on the idea that one is engaging with a tradition that will continue after one is dead. (If one does not feel that way about philosophical inquiry, then other potential sources of value that meet these criteria can be substituted without losing the point.) Consider the following case:

*Hiatus*: You learn that the practice of philosophical inquiry will go on hiatus for many years shortly after your death. Afterward, people will take up philosophy again, and they will start by reading the work published before the hiatus.

Would the prospect of *Hiatus* threaten the value you place in your philosophical inquiry? Would increasing the length of the hiatus cause it to seem to lose even more value? If *Hiatus* significantly lessened the perceived value of your philosophical inquiry, then that would be evidence for an intergenerational time preference. Moreover, if time preference affects the perceived value of philosophical inquiry, then we should expect its value to decrease as the length of the hiatus increases. As the hiatus increases, at some point future philosophical inquiry should hardly matter to you at all.[[15]](#footnote-15)

None of this seems to be true, and for good reason.[[16]](#footnote-16) If philosophical inquiry matters to us partly because it engages with a tradition that will continue after we die, then it still matters even if this tradition will go on hiatus for a period after our deaths. In other words, philosophical inquiry continues to matter to us regardless of which future generations we engage with, if we hold constant the qualities of the engagement. To think otherwise would be to draw an arbitrary distinction based solely on the temporal locations of the people that continue our traditions. Thus, imagine the story ending this way:

After a considerable hiatus, people come to see the value in philosophy again, and they find a sense of connection and seeming truth in your work.

Is that something that you would care about? What if this happens 100 years from now? What about 1000 years? How about 10,000 years? Does time itself change how you feel about the end of the story, in such a way that as the event becomes more distant you care about it less and less?[[17]](#footnote-17)

Since the time-bias model is not supported by experimental results and seems implausible in thought experiments — suggesting, as we have noted in this section, that people base their preferences on arbitrary considerations — we should consider alternatives. The time-bias model seems wildly inaccurate in the worst case, or, in the best case, a crude approximation of the things that actually matter to intergenerational trade-offs. Even if the model is an approximation, there is an opportunity to find something better: more useful models may be available that can more effectively guide our thinking about intergenerational trade-offs.

1. *Can Social Bias Replace Time Bias in Discounting Analyses?*

At this point, one might lodge the following objection: “Despite its normative and descriptive implausibility, we are justified in continuing to incorporate pure time preference into intergenerational discount rates because objective time is the only reasonable measure by which to model diminished concern for future welfare, whatever its real causes or justifications.” Against this, in this section I’ll argue that the task of replacing pure time preference with social preference in discounting analyses is not insurmountable, and that doing so would have considerable benefits. The relevant form of the argument differs depending on whether one takes the prescriptivist or descriptivist standpoint. Consider the prescriptivist first, since that is the more straightforward case.

As discussed in Section 2, prescriptivists, such as Stern (2007), claim that future welfare should be treated on a par with our own. They incorporate this claim into discounting analyses by demanding that the rate of pure time preference be set to *zero*.[[18]](#footnote-18) For this kind of claim, it is easy to swap out time preference for social preference, since theorists like Stern reject both (or at least anything other than a *slight* social preference — more on this in the next paragraph). Thus, if we exchange rejection of pure time preference for rejection of social preference, then none of the conclusions or policy recommendations change.

Nevertheless, by changing the *motivation* or *normative justification*, the prescriptivist makes their analysis more plausible and explanatory. Consider, as just one example, how a focus on social bias would help the prescriptivist respond to the “infinite-future” objection. Farber (2003: 293) puts the objection like this: “If we consider the future as effectively unlimited in duration, we cannot devote our current resources in equal shares over an infinite number of time periods.”[[19]](#footnote-19) Farber concludes that we must adopt at least a slight pure time preference when dealing with infinite timeframes. Of course, the prescriptivist might deny that one or more of the assumptions here are applicable to the real world — perhaps by denying that the real timeframe is infinite or that resources cannot be infinitely renewed or substituted. However, to say what *would* be justified under such conditions, the prescriptivist seems forced to accept at least a very slight pure time preference. But doing so puts the prescriptivist in the curious position of claiming that pure time preference is patently arbitrary in the finite case but somehow justified in the infinite case.[[20]](#footnote-20)

Instead, by focusing on social bias and not time bias, prescriptivists can continue to insist on the patent arbitrariness of pure time preference, regardless of whether the timeframe is finite or infinite, but grant the justifiability of a very slight social preference. Notice that the objection concerning infinite periods with finite populations is just like an objection concerning an infinite population at a single period: in each case, we are forced to decide how to spend finite resources over an infinite population. Of course, we could try to solve the infinite-population-existing-at-one-time problem by adopting a very slight “spatial-discount rate,” but doing so seems patently arbitrary.[[21]](#footnote-21) The same is true of adopting a very slight time-discount rate int eh case of finite-populations-existing-over-infinite-time.[[22]](#footnote-22) In each case, the better way forward is to accept a social preference as justifiable.[[23]](#footnote-23) Basing preferences on a very slight social preference is far more justifiable, from a prescriptivist standpoint, than basing preferences on non-social features of the physical makeup of our universe like distance or time.

In general, I hope to have shown in this paper that it would be good for prescriptivists to recognize that what they are really arguing about is the justifiability of social preference. Thus, when economists like Stern (2007) call for future welfare to be treated on a par with our own, prescriptivists shouldn’t focus their attention on justifying this as a rejection of a type of time preference, but instead on justifying it as a rejection of a type of social preference. A further benefit of this is that it connects the study of intergenerational welfare trade-offs to the debate over whether we should reject social bias in charitable giving for contemporaries. *That* debate has evolved dramatically over the past several decades, with clear changes to common attitudes and policy decisions. In comparison, the debate over the discounting of future welfare appears stagnant. I suggest that this is because the debate over future welfare is focused on temporal relationships when it should instead, like the debate over charitable giving for contemporaries, be focused on social relationships.

Turn now to the descriptivist point of view. Does descriptivism fare better in motivating the above objection: that “objective time is the only straightforward measure by which to model diminished concern for future welfare”? There are two potential responses to this: a more conciliatory response and a more ambitious one. Consider the more conciliatory response first.

If the arguments of this paper are correct, then there is no good reason to suspect that people are reacting to temporal properties in showing diminished concern for future welfare, and some reason to suspect that they are reacting to social properties. Despite this, we could grant that in many instances, applying a rate of pure time preference to future utility produces our best guess of how things would look if people were discounting future utility on the basis of social distance. If that were true, then it would still be helpful for the descriptivist to explain what they are modeling: instead of calling the relevant parameter of the discounting analysis the “pure rate of time preference,” they should call it the “estimate of social preference.” Doing so would provide benefits similar to those seen in the prescriptivist case: it would better explain what we are trying to estimate and why it matters. Specifically, it would better illuminate the kind of claim the analysis is making about descriptive human preferences, and it would help to flag our uncertainties for exploration in future empirical research.

Even though this response is conciliatory, it is not merely a call for re-labeling. Calling the “pure rate of time preference” the “estimate of social preference” may also help make sense of supposed anomalies and departures from exponential discounted utility theory in people’s preferences for future welfare trade-offs. Studies that attempt to quantify diminished concern for future welfare on the basis of time distance have consistently obtained paradoxical results. They have, for example, concluded that people’s average time discount rate for lives saved changes depending on the time horizon. People’s rate of discount for near-future lives saved is relatively high, the rate for more distant lives saved is lower, and the rate for very distant lives is even lower.[[24]](#footnote-24) This is a mysterious result given the assumption that people discount future welfare by time distance. At the least, there is no justification for these preferences given the assumption that people are basing preferences in that way.

Researchers attempting to model diminishment of concern on the basis of time distance have also found wide variability in the “functional forms” of discounting, and they continue to debate whether interpersonal discounting is best characterized by an exponential or hyperbolic function. In McDonald et al.’s (2017) studies, people’s preferences seemed to be best captured by a *subadditive* function.

Perhaps these problems can be traced back to the assumption that people base preferences on distance in time. In other words, perhaps it is precisely the assumption that people are arbitrary that makes it seem like there is no reasonable explanation for their preferences.

These concerns lead naturally to a more ambitious proposal for the descriptivist. This calls for the gradual replacement of discounting utility by time distance with discounting utility by social distance *directly*; that is, using empirical research on social bias to calculate an average rate of *social discounting*, and using that rate in discounting analyses. Research on social discounting is in its infancy, but it is worth commenting on its recent history and future prospects.

The economist Julian Simon (1995, 368) first suggested that people’s tendencies to allocate resources can be broken up into three dimensions:

1. Resources for current consumption by the same person.
2. Resources for future consumption by the same person.
3. Resources for current or future consumption by other individuals.

Perhaps, Simon claimed, we should model (1) and (2) as a function of temporal distance (as in first-person hedonic time discounting). However, he claimed that (3) should be modeled as a function of “perceived social distance.” This idea is now called “social discounting” in the psychology literature.

A social discount function measures the value of a reward allocated to another person at a given perceived social distance. Studies of social discounting proceed similarly to studies of time discounting. Participants are asked to imagine a ranking of the 100 people “closest to them” and to consider making various trade-offs between a reward for another person and a reward for themselves. For example, a participant might be asked whether she would prefer $25 for herself or $100 for another person of a given closeness rank. The amounts are then varied to determine an indifference point for each rank.[[25]](#footnote-25)

Social discounting and time discounting have some related properties. Trope and Liberman (2010) found that temporal and social distance are both dimensions of psychological distance and influence decision making. Jones and Rachlin discovered that human social dis- counting, like human time discounting, is hyperbolic (2006; 2009; Rachlin and Jones, 2008b). Importantly, as researchers like Stephan et al. (2011), Jones et al. (2017), and Schreiner et al. (2018) argue, it seems that time distance matters to preferences for resource trade-offs only through its effects on perceived social closeness. In other words, time distance is just one factor that influences perceived social closeness, and (in addition to uncertainty) *perceived social closeness is what matters to resource trade-offs.*

Another factor that influences perceived social closeness is kinship,[[26]](#footnote-26) but there are probably more factors. Research into these factors is just beginning. If, on the one hand, we can create satisfactory descriptive models of social discounting by focusing only on kinship, then we can estimate an average social discount rate by looking at the expected rate of decrease in kinship over time.[[27]](#footnote-27) If, on the other hand, models of social discounting seem to require a focus on additional factors to be useful, then more complicated calculations will be required. In any event, a descriptivist methodology that focuses on empirical research into social discounting would be more promising than one that focuses on empirical research into time discounting. If people are not reacting to temporal properties in showing diminished concern for future welfare, but instead social properties, then we should expect such an approach to (at least eventually, as the empirical research improves) lead to more accurate analyses.

1. *Conclusion*

The view that people approach intergenerational trade-offs with a time bias assumes that people are arbitrary and irrational, and it does so with little to no support from experimental data. A more charitable interpretation posits that what matters is the social connections between people, and a corresponding social bias. Thus, this interpretation offers more plausible explanations while staying rooted in recent psychological research. Therefore, the concept of social bias should be of interest to descriptivists about intergenerational discounting, as should social discounting and its potential to replace time discounting in descriptivist analyses.

Similarly, focusing on social bias improves the motivations or normative justifications for perspectivist moral analysis relevant to intergenerational discount rates. By focusing on (the rejection of) social bias, prescriptivist analysis comes into contact with the most charitable reasons to discount the welfare of future people. This also creates a link between the moral philosophy of charitable giving and that of intergenerational welfare. In recent times, an astonishing amount of progress, or at least change, has occurred in common attitudes toward charitable giving and the justifiability of social bias. If debates over the discounting of future welfare appear stagnant in comparison, perhaps it is because they focus on the wrong properties — their focus has been temporal relationships instead of social ones.

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*References*

Ahmed A (2018) Rationality and future discounting. *Topoi* 39: 245–256.

Anderson A and Myers DH (2018) Sustainability: Time value, social distance, and efficiency effects. *Moral Cents* 7(1): 3–24.

Brennan G (2007) Discounting the future, yet again. *Politics, Philosophy & Economics* 6(3): 259–284.

Brink D O (2010) Prospects for temporal neutrality. In: Callender C (ed) *The Oxford Handbook of Time*. Clarendon Press.

Broome J (1999) *Ethics out of Economics*. Cambridge University Press.

Broome J (2016) The wellbeing of future generations. In: Adler M and Fleurbaey M (eds) *The Oxford Handbook of Wellbeing and Public Policy*. Oxford University Press, pp.901–928.

Caney S (2008) Human rights, climate change, and discounting. *Environmental Politics* 17(4): 536–555.

Caney S (2014) Climate change, intergenerational equity and the social discount rate. *Politics, Philosophy & Economics* 13(4): 320–342.

Caruso EM, Gilbert DT and Wilson TD (2008) A wrinkle in time: Asymmetric valuation of past and future events. *Psychological Science* 19(8): 796–801.

Chapman GB (2001). Time preferences for the very long term. *Acta Psychologica* 108(2): 95–116.

Cholbi M (2018) The desire to work as an adaptive preference. *Autonomy* 4: 1–17.

Cowen T and Parfit D (1992) Against the social discount rate. In: Fishkin JS and Laslett P (eds) *Justice Between Age Groups and Generations*. Yale University Press, pp.144–161.

Cropper ML and Portney PR (1990) Discounting and the evaluation of lifesaving programs. *Journal of Risk and Uncertainty* 3: 369–379.

Davidson MD (2015) Climate change and the ethics of discounting. *WIREs Climate Change* 6: 401–412.

De Lazari-Radek K and Singer P (2014) *The Point of View of the Universe: Sidgwick and Contemporary Ethics*. Oxford University Press.

Dougherty T (2015) Future bias and practical reason. *Philosophers’ Imprint* 15(30): 1–16.

Eckstein O (1957) Investment criteria for economic development and the theory of intertemporal welfare economics. *Quarterly Journal of Economics* 71(1): 56–85.

Farber DA (2003) From here to eternity: Environmental law and future generations. *University of Illinois Law Review* 2003(2): 289–236.

Fitzpatrick WJ (2007) Climate change and the rights of future generations: Social justice beyond mutual advantage. *Environmental Ethics* 29(4): 369–388.

Frederick S, Loewenstein G and O’Donoghue T (2002) Time discounting and time preference: A critical review. *Journal of Economic Literature* XL: 351–401.

Goodin RE (1982) Discounting discounting. *Journal of Public Policy* 2(1): 53–71.

Greaves H (2019) Discounting for public policy: A survey. *Economics and Philosophy* 33: 391–439.

Greene P, Holcombe A, Latham A, Miller K and Norton J (2021) The rationality of near bias toward both future and past events. *Review of Philosophy and Psychology* 12: 905–922.

Greene P, Latham A, Miller K and Norton J (2021) Hedonic and non-hedonic bias toward the future. *Australasian Journal of Philosophy* 99(1): 148–163.

Greene P and Sullivan M (2015) Against time bias. *Ethics* 125(4): 947–970.

Griffith AM (2017) The rights of future persons and the ontology of time. *Journal of Social Philosophy* 48(1): 58–70.

Hare C (2008) A puzzle about other-directed time-bias. *Australasian Journal of Philosophy* 86(2): 269–277.

Hare C (2013) Time — The emotional asymmetry. In: Dyke H and Bardon A (eds) *A Companion to the Philosophy of Time*. Wiley-Blackwell, pp.507–20.

Harrod R (1948) *Towards a Dynamic Economics*. Macmillan.

Heath J (2017) Climate ethics: Justifying a positive social time preference. *Journal of Moral Philosophy* 14: 435–r62.

Heathwood C (2008) Fitting attitudes and welfare. In: Shafer-Landau R (ed) *Oxford Studies in Metaethics* (Volume 3). Oxford University Press, pp.47–73.

Heilman C (2017) Values in time discounting. *Science and Engineering Ethics* 23(5): 1333–1349.

Heinzerling L (1999) Discounting our future. *Land and Water Law Review* 34(1): 39–74.

Johannesson M and Johansson PO (1996) The discounting of lives saved in future generations — Some empirical results. *Health Economics* 5(4): 329–332.

Jones B and Rachlin H (2006) Social discounting. *Psychological Science* 17(4): 283–286.

Jones BA and Rachlin H (2009) Delay, probability, and social discounting in a public goods game.

*Journal of the Experimental Analysis of Behavior* 91(1):61–73.

Jones C, Hine DW and Marks ADG (2017) The future is now: Reducing psychological distance to increase public engagement with climate change. *Risk Analysis* 37(2): 331–341.

Kelleher JP (2017) Descriptive versus prescriptive discounting in climate change policy analysis. *The Georgetown Journal of Law & Public Policy* 15: 957–978.

Koopmans TC (1967) Objectives, constraints, and outcomes in optimal growth models. *Econometrica* 35(1): 1–15.

Loewenstein G (1987) Anticipation and the valuation of delayed consumption. *Economic Journal* 97(387): 666–684.

Loewenstein G and Elster J (1992) *Choice Over Time*. Russell Sage Foundation.

Loewenstein G, Read D and Baumeister RF (2003) *Time and Decision: Economic and Psychological Perspectives of Intertemporal Choice*. Russell Sage Foundation.

Ma Q, Pei G and Jin J (2015) What makes you generous? The influence of rural and urban rearing on social discounting in China. *PLoS One* 10(7): 1–11.

Marglin SA (1962) Economic factors affecting system design. In: Maass A, Hufschmidt MM, Dorfman R, Thomas H, Marglin SA and Fair GM (eds) *Design of Water Resource Systems*. Harvard University Press, pp.159–225.

Marglin SA (1963) The social rate of discount and the optimal rate of investment. *Quarterly Journal of Economics* 77(1): 95–111.

McDonald RL, Chilton SM, Jones-Lee MW and Metcalf HRT (2017) Evidence of variable discount rates and non-standard discounting in mortality risk valuation. *Journal of Environmental Economics and Management* 82: 152–67.

Mogensen AL (2022) The only ethical argument for positive δ? Partiality and pure time preference. *Philosophical Studies* 179(9): 2731–2750.

Nozick R (1981) *Philosophical Explanations*. Harvard University Press.

Parfit, D. 1984. Reasons and Persons. Oxford University Press.

Pigou AC (1932) *The Economics of Welfare* (Fourth Edition). Macmillan and Co.

Prior A (1959) Thank goodness that’s over. *Philosophy* 34(128): 12–17.

Rachlin H and Jones BA (2008a) Altruism among relatives and non-relatives. *Behavioural Processes* 79: 120–123.

Rachlin H. and Jones BA (2008b) Social discounting and delay discounting. *Journal of Behavioral Decision Making* 21(1): 29–43.

Ramsey F (1928) A mathematical theory of saving. *Economic Journal* 38(152): 543–559).

Robinson JC (1990) Philosophical origins of the social rate of discount in cost-benefit analysis. *The Milbank Quarterly* 68(2): 245–265.

Sagoff M (1988) *The Economy of the Earth*. Cambridge University Press.

Schelling TC (2000) Intergenerational and international discounting. *Risk Analysis* 20(6): 833–837.

Schreiner N, Pick D and Kenning P (2018) To share or not to share: Explaining willingness to share in the context of social distance. *Journal of Consumer Behaviour* 17(4): 366–78.

Sidgwick H (1884) *The Methods of Ethics* (Third Edition). Macmillan and Co.

Simon J (1995) Interpersonal allocation continuous with intertemporal allocation. *Rationality and Society* 7: 367–392.

Slote MA (1983) *Goods and Virtues*. Oxford University Press.

Solow RM (1974) Intergenerational equity and exhaustible resources. *Review of Economic Studies* 41: 29–45.

Soman D, Ainslie G, Frederick S, Li X, Lynch J, Moreau P, Mitchell A, Read D, Sawyer A, Trope Y and Wertenbroch K (2005) The psychology of intertemporal discounting: Why are distant events valued differently from proximal ones? *Marketing Letters* 16(3–4): 347–360.

Sozou PD (2009) Individual and social discounting in a viscous population. *Proceedings of the Royal Society B: Biological Sciences* 276(1669): 295529–62.

Spash CL (1993) Economics, ethics, and long-term environmental damages. *Environmental Ethics* 15: 117–132.

Stephan E., Liberman N and Trope Y (2011) The effects of time perspective and level of construal on social distance. *Journal of Experimental Social Psychology* 47: 397–402.

Stern N (2007) *The Economics of Climate Change: The Stern Review*. Cambridge University Press.

Story GW, Vlaev I, Seymour B, Darzi A and Dolan RJ (2014) Does temporal discounting explain unhealthy behavior? A systematic review and reinforcement learning perspective. *Frontiers in Behavioral Neuroscience* 8: 1–20.

Tarsney C (2017) Does a discount rate measure the costs of climate change? *Economics and Philosophy* 33: 337–365.

Trope Y and Liberman N (2010) Construal-level theory of psychological distance. *Psychological Review* 117(2): 440–463.

Velleman JD (1991) Well-being and time. *Pacific Philosophical Quarterly* 72(1): 48–77.

Yi R, Charlton S, Porter C, Carter AE and Bickel WK (2011) Future altruism: Social discounting of delayed rewards. *Behavioural Processes* 86(1): 16016–3.

*Bibliography*

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1. For philosophically accessible overviews of this phenomenon, see Loewenstein and Elster, 1992; Loewenstein et al., 2003; and, especially, Frederick et al., 2002. [↑](#footnote-ref-1)
2. Descriptivist analysis must account for classes of preference that should not be given full due in policymaking, such as preferences rooted in sadism or addiction (Cholbi, 2018: 4). There are several important and interesting issues here that have been given insufficient attention in economic analysis. For example, as Cholbi (2018) asks, should “adaptive preferences” — preferences formed through exposure to a limited set of options constrained by unjust conditions — be given full due in descriptivist policymaking? Or, as Tarsney (2017: 340–1) asks, should preferences that people actually have but tend not to reflectively endorse be given full due? [↑](#footnote-ref-2)
3. For more on the prescriptivist/descriptivist distinction, including citations of typical prescriptivists and descriptivists, see Davidson, 2015: 404–5. For a detailed breakdown of prescriptivist and descriptivist analyses, see Kelleher, 2017. Kelleher distinguishes between three kinds of descriptivism and two kinds of prescriptivism. [↑](#footnote-ref-3)
4. See Hare, 2013: 510. [↑](#footnote-ref-4)
5. An anonymous reviewer points out that, strictly speaking, our propensity to not discount our own present utility is a form of first-person hedonic preference that is relevant to intergenerational discounting. (Discounting our present utility and not future people’s would result in a negative rate.) Therefore, the more precise statement of the claim made in the main text is that in so far as intergenerational discounting results from a diminishment of concern for what happens to future people, the relevant preferences are not first-person hedonic. [↑](#footnote-ref-5)
6. This empirical data offers substantial support for previous objections against the idea that we should look to capital markets when considering average intergenerational time preferences. Capital markets would not be relevant to intergenerational time preferences if what determines them is first-person time preference. As Davidson (2015: 404) points out: “From the observation that I am saving an apple so I can eat it tomorrow, it cannot be deduced that I am either willing or morally obliged to save an apple so someone else can eat it tomorrow. Neither can it be deduced from the fact that I do *not* save an apple for myself that I am unwilling to save it for someone else.” And as Brennan (2007: 281) argues: “Whatever authority the principle of consumer sovereignty may exert in the inter-temporal case, it is not analogously relevant to the intergenerational case. The latter is a matter of justice, not of prudence — and one cannot simply assume that the ethical considerations that govern these two domains are identical.” Simply put, the objection is that individual time preferences are not relevant to *interpersonal* preferences in general, and thus they certainly are not relevant to intergenerational time preferences (see also Caney, 2008: 542; Sagoff, 1988: 50–73; and Tarsney, 2017: 341–2). In fact, two early adopters of the descriptivist view — Eckstein (1957) and Marglin (1963) — argued that people have different preferences for individual and collective decisions (even when such collective decisions are not intergenerational) and that capital markets only reveal preferences for individual decisions. Eckstein and Marglin ultimately recommended using a variegated approach to determining discount rates relevant to collective decisions — an approach that draws data from both markets and political processes. See Robinson, 1990: 258–9. [↑](#footnote-ref-6)
7. Intuitive arguments for the rational permissibility of future bias also typically reference experienced time. We feel, intuitively, that things are better when painful experiences are “over and done with” (Heathwood, 2008: 57), we say things like “thank goodness that’s over” (Prior, 1959), and we are “greatly relieved” that a painful experience has already occurred (Parfit, 1984: 165). In line with these arguments, a standard prediction in the philosophical literature is that there is no future bias when experiences are absent (see discussion of “hedonic/non-hedonic asymmetry” above). [↑](#footnote-ref-7)
8. See Parfit, 1984: Section 3 for motivation of this view, and Ahmed, 2018 for a recent response to it. [↑](#footnote-ref-8)
9. Slote (1983: 23–4) and Velleman (1991) argue that this preference is rational. [↑](#footnote-ref-9)
10. In addition to the wide divergence in estimates of discount rates, Story et al. (2014) focus on the lack of correlation between discount rates in differing choice domains and the fact that studies find significant amounts of “negative discounting” for bad events (i.e., people who prefer to hasten the arrival of bad events). [↑](#footnote-ref-10)
11. Cf. De Lazari-Radek and Singer, 2014: 361. Many economists have objected to Stern’s analysis on the grounds that his novel recommendations are almost entirely driven by his ethical view of intergenerational equity (see Heilman, 2017: 1339). As Heilman (2017: 1335) explains, “When chosen carefully, time discounting can ... ’overturn’ many other factors in a decision-making process,” thus “the magnitude in which time discounting can influence decision-making dwarfs any uncertainty that climate change scientists attach to their projections. The stakes could hardly be higher.” [↑](#footnote-ref-11)
12. One of the best accounts of the development of this framework can be found in Greaves, 2019: Sections 3–6. [↑](#footnote-ref-12)
13. Philosophers tend to think that time preference is arbitrary because it attaches normative importance to what Parfit (1984: Section 46) calls a “purely positional property.” Purely positional properties, like space and time, do not, in themselves, amount to relevant differences in the intrinsic desirability of events. See also Parfit, 1984: Appendix F; Pigou, 1932: 29–30; and Solow, 1974: 9. As Broome (2016: 10) writes, the rejection of pure discounting is supported by the popular view that morality must be impartial. For more, see the discussion in Greaves, 2019: Section 7.1. [↑](#footnote-ref-13)
14. It may be, for example, that there is a minimum level of concern for all sentient life, and that social connections simply add on top of that. If so, then we should expect discounting of welfare to ‘bottom out’ at some point. While we could try to model this phenomenon using time distance, if people are not, in fact, responding to time distance, then such modeling will be more complex and less explanatory. [↑](#footnote-ref-14)
15. Unless we attempt to model with a time discount function that, for some reason, ‘bottoms out’ at a positive level. (See footnote 14). [↑](#footnote-ref-15)
16. Cf. Nozick, 1981: 584: “You want there to be some time after which you continue to leave a mark, but this time needn’t be precisely at your death. Artists as well as those who anticipate resurrection are quite willing to contemplate and tolerate a gap.” [↑](#footnote-ref-16)
17. One might prefer, less arbitrarily, that the future generations that continue our traditions are like us, and one might expect the next generation to be more like us than subsequent ones. This, however, would not be a time preference. Such a person would care about social closeness and not temporal nearness. Parfit (1984: 485) makes a corresponding point regarding the view that degree of kinship justifies discounting: “We believe that our government ought to be especially concerned about the interests of its own citizens. It would be natural to claim that it ought to be especially concerned about the future children of its citizens, and, to a lesser degree, about their grandchildren. Such claims might support a new kind of Discount Rate. We would be discounting here, not for time itself, but for degrees of kinship.” Parfit, however, ultimately rejects discounting for kinship. A recent paper by Mogensen (2022) responds to Parfit’s objections and argues in favor of discounting for kinship. [↑](#footnote-ref-17)
18. The rejection of pure time preference in discounting analyses is usually associated with utilitarianism. (See Davidson, 2015: 405–6 for more on the utilitarian approach to discounting and citations of adherents to the utilitarian view.) My proposal is that the utilitarian view of intra- and inter-generational trade-offs implies the rejection of social bias (see below in this section). In contrast, some deontologists explicitly deny the equivalence of intra- and inter-generational trade-offs in cases of foreign aid and climate change (e.g., Spash (1993) and Caney (2008)), though many do not (e.g., Fitzpatrick (2007)). (This debate may depend on the metaphysics of time; specifically, the rights of future persons may be similar to those of present persons if eternalism is true. See Griffith, 2017.) However, the deontological arguments concern apparent asymmetries in the violation of human rights, and not asymmetries between temporal and social distance. [↑](#footnote-ref-18)
19. See also discussion in Greaves, 2019: 408–9. This objection is similar to a common objection against zero time discounting in the individual case: what Koopmans (1967: 8) called the “paradox of the indefinitely postponed splurge,” which ostensibly motivates the adoption of at least a very slight time preference. Heath (2017) forcefully presents the case that this and related problems necessitate the temporal discounting of welfare, and that contrary proposals from philosophers (who almost universally conclude that temporal discounting of welfare is unjustified) are too extreme to matter to actual policy debates. My view is that such proposals can be made less extreme by substituting social distance for time distance, and I agree with Heath (2017: 458) that such a practice could imbue time distance with moral significance if it is used as a proxy for social distance (see my “conciliatory” response for the descriptivist, below). Though I also believe that the general “demandingness” argument for positive pure time discounting is flawed. As Caney (2014: 326–7) and Tarsney (2017: 344–6) point out, the supposed excessive demandingness of zero pure time discounting can be overcome *either* by endorsing a positive pure time discount rate or by modifying our distributive principles. In my view, it is better to modify the distributive principles because doing so is more plausible from the standpoint of ethical analysis. See also Brennan, 2007: 268: “As I see it, what Koopmans’ argument, properly interpreted, amounts to is not a case for discounting as such, but *a case against simple utilitarianism*.” [↑](#footnote-ref-19)
20. See Tarsney, 2017: 347–8 for a compelling argument that time discounting offers no hope of escape, even in principle, from the problem of infinite time horizons. [↑](#footnote-ref-20)
21. Though it is possible that spatial proximity serves as a psychological heuristic for social closeness. See Sozou, 2009: 2955–6. [↑](#footnote-ref-21)
22. Though see Heath, 2017: 445–7 for the argument that the spatial and temporal cases are different because the people affected in the spatial case exist. [↑](#footnote-ref-22)
23. Cf. Anderson and Myers, 2018: 9: “One hurdle with intergenerational investing has been that if you consider impacts on the future generations and the ’infinite’ population they represent, you must assume a large time discount rate to explain why we do not seem to factor future generations into our decisions. The social distance measure substitutes for this large time discount rate and argues that the difference between environmentalists and non-environmentalists is represented by large differences in social distance to future generations.” [↑](#footnote-ref-23)
24. See, e.g., Cropper and Portney, 1990; Johannesson and Johansson, 1996; and Chapman, 2001. The problems with empirical research into intrapersonal hedonic discounting (discussed in Section 1.3) are equally applicable to research into interpersonal discounting. Reported rates of interpersonal discounting range wildly (again, as with intrapersonal time discounting, from negative rates to infinity). See Heinzerling, 1999 and McDonald et al., 2017. Thus, the conclusions we can draw from the empirical literature on interpersonal discounting are limited. Nevertheless, the claim I make in the main text — that average rates of discount decrease for longer time horizons — is a robust and consistent result. The specific rate at each time horizon is unclear. [↑](#footnote-ref-24)
25. See, e.g., Jones and Rachlin, 2006 and 2009; Rachlin and Jones, 2008b; Yi et al., 2011; or Ma et al., 2015. [↑](#footnote-ref-25)
26. As per Parfit’s suggestion (discussed in Footnote 17). [↑](#footnote-ref-26)
27. See, e.g., Rachlin and Jones, 2008a or Sozou, 2009. [↑](#footnote-ref-27)