Sustainability and the Welfare of Future Generations

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Abstract

This project examines the implications of utilitarian morality for future generations. Utilitarianism defines welfare as the morally relevant subjective conditions of sentient beings and confers moral value to all people, both present and future, in equal measure. While the number of future people will likely far exceed the present population, it is unnecessary to set aside present resources exclusively for future welfare promotion. However, concern for future welfare does require us to meet present needs sustainably so that a wide range of resources remain available for future use. Governments, which are necessary to overcome collective action problems and provide public goods, share our common moral obligation to promote sustainability. Of particular concern is our present capitalist economic system of resource allocation, which is facilitating drastic increases in inequality and reducing the share of resources available to most people for welfare promotion; workplace automation is likely to exacerbate this. Without corrective intervention, this system will soon be insufficient to meet the needs of most people and is therefore unsustainable long-term. Concern for the welfare of future generations necessitates the provision of a redistributive universal basic income, which would counteract the economically deleterious effects of automation and ensure that all people—present and future—can enjoy sufficient economic security to promote their own welfare according to their subjective preferences.

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Introduction

It is a commonly held view that future generations are worthy of moral consideration, but there is a lack of consensus on what that consideration should normatively entail given that the interests of future generations may conflict with those of present ones. In this thesis, I intend to arbitrate this dispute by exploring the determinants of moral value and developing a theory which allows us to determine the relative importance of addressing the concerns of people in the present versus people in the future. I find that concern for future generations obliges us to implement sustainable practices, and I argue that governments play a crucial role in the promotion of present and future welfare by allowing us to overcome collective action problems, facilitating an equitable allocation of resources, and promoting sustainability. While the necessity of environmental protection for the sake of future welfare has been well-established, economic intervention—in the form of a universal basic income—is also required to ensure that present and future generations have access to the resources they need to promote their welfare.

In developing the theory, I proceed from the basic utilitarian arguments that people are morally relevant in virtue of their capacity for conscious experience of welfare, that morality requires us to maximize the welfare of ourselves and other people, and that governments are necessary for the maintenance of ethical societies in which welfare is promoted over competing interests. In these arguments, I employ welfare as a concept which refers to positive subjective experience and acknowledge that the particular determinants of each individual's welfare are influenced by their subjective preferences. In particular, I will examine those determinants of welfare which a government may justly influence, either directly or indirectly. This will permit me to isolate resource-distributive programs which clearly impact individual welfare, which may be conducted sustainably, and which are therefore relevant to the theory. I further elaborate on the nature of welfare, the production

and distribution of resources, and the rightful and relevant scope of government influence in the subsequent sections.

This project may be conceptualized as an attempt to answer several interrelated questions. Can we establish a generalizable definition of individual welfare which is defensible in the context of a utilitarian conception of ethics? From here I will turn to the question of future generations, beginning with a definition of the term. Using an expanded version of the previously outlined justification for the moral relevance of present people, I examine whether and how future generations are worthy of moral consideration as well. If they are indeed worthy of consideration, is it possible to create a valuative theory which allows us to express the weight of their future morally relevant interests relative to the interests of citizens in the present? Does this constitute a sufficient framework through which to determine how present resources should be distributed, or are there other logistical or moral considerations which are relevant to this distribution? Once this comparison is delineated, I will examine those determinants of individual welfare—which is both subjective and comprised of various interrelated dimensions—which may justifiably be promoted through government intervention and programming. Finally, I will examine whether the previously mentioned valuative theory endorses a normative applied ethical theory which compels governments to conduct policies and programs sustainably—and in particular to implement a universal basic income program—for the sake of future interests.

Literature Review

Numerous theorists have examined whether and how moral concern for future generations necessitates present interventions for the sake of future welfare, particularly regarding the production, usage, and conservation of resources, as well as in population and environmental policy. Alan Gewirth argues that the rights of future people place general

restrictions on the actions of present people: "[the present generation] has the duty to refrain from enriching itself in ways that will bring drastic harm to the future generations."[1] Brian Barry characterizes these restrictions in terms of sustainability, suggesting that future people will require certain resources in order to meet their needs and pursue their welfare. Distributive justice requires that present people conduct their affairs sustainably—particularly with regard to the environment—so that future generations receive a just share of resources. Sustainability also necessitates population policies which restrict the number of future people to a quantity which may be supported by available resources.[2]

Paul Ehrlich's *The Population Bomb*, despite the ultimate falsity of its dire predictions, popularized arguments for the moral necessity of restrictive population policies in order to avert future catastrophe.[3] Amartya Sen rejects this alarmism, suggesting instead that population policy—and its influence on future population sizes—is not necessary to prevent some impending disaster. Rather, it is important in virtue of its impact on the environment and on maintaining quality of life.[4] Bryan Norton likewise argues for the promotion of sustainable practices in the interest of environmental conservation, particularly for the sake of future generations, through accessible public discourse.[5] Others, including John Broome, have argued that it is necessary to measure the value of existence before coming to conclusions about policies which would affect population or the environment. Broome suggests that the imminent threat of climate change increases the urgency of this axiological project.[6] Undertaking this work is the *Population Ethics: Theory and Practice*

[1] Gewirth, "Human Rights and Future Generations."
[2] Barry, "Sustainability and Intergenerational Justice."
[3] Ehrlich, *The Population Bomb*.
[4] Sen, "Population: Delusion and Reality."
[5] Norton, *Sustainability: A Philosophy of Adaptive Ecosystem Management*.
[6] Broome, "The Most Important Thing about Climate Change."

project at the Future of Humanity Institute at Oxford University, which seeks to answer questions about the value of life in order to inform public policy.[7]

These constitute theoretical attempts to demonstrate that concern for future generations necessitates sustainability, environmentalism, or population policy. John Rawls instead argues for the moral imperative of a just society. His just savings principle requires present people to ensure "the conditions needed to establish and to preserve a just basic structure over time." This means that current generations should save sufficient resources and ensure conditions under which just social institutions may be created and sustained for the sake of future welfare.[8] This brief sampling of approaches is by no means exhaustive; to be sure, many additional philosophers have addressed the normative implications of present concern for future generations. However, few have explicitly acknowledged the necessity of government intervention for the sake of long-term economic sustainability, specifically through the implementation of a universal basic income. I intend to make the case for sustainability in general, and a UBI in particular, in subsequent chapters.

[7] "Population Ethics: Theory and Practice."
[8] Rawls, *Justice as Fairness: A Restatement*.

Chapter 1 – Utilitarian Welfare[9]

1.1 – Locating Moral Value

In examining individual welfare, I will proceed from the basic utilitarian assumption that the "good"—that is, the source of moral content—exists "within" conscious beings. That is, sentient entities are moral ends in themselves, and the purest form of moral good exists as a condition within these conscious beings. In the context of this thesis, "conscious beings" and "sentient entities" refer specifically to human people—particularly citizens of a hypothetical state which is attempting to promote its citizens' welfare. Indeed, I use "people" to refer specifically to humans throughout this project. However, it is worth noting that this definition of welfare endorses a conception of moral content which may be located in any conscious being, human or otherwise. This means that all sentient entities are morally valuable in virtue of our capacity for the experience of welfare.

Despite this, a full examination of the ethical and normative implications of non-human animal welfare falls beyond the scope of this project. It is certainly the case that particular theoretical government interventions which I will discuss—including environmental protection and conservation, for example—would likely promote the welfare of non-human animals as well as the citizens of the intervening government. However, the primary goal of the various initiatives discussed in this thesis is the promotion of human welfare, and any benefits which might theoretically accrue to non-human animals are purely incidental. This is not to claim that animals are merely instrumentally valuable—that is, that their value derives entirely from their usefulness in improving the wellbeing of humans, and

[9] Jeremy Bentham's *An Introduction to the Principles of Morals and Legislation*, published in 1789, formally codified the basic principles of utilitarianism and delineated a hypothetical set of utilitarian laws. John Stuart Mill further refined the theory in *Utilitarianism* (published 1861), principally by differentiating between more and less valuable forms of pleasure. These two philosophers are widely considered to be the foremost proponents of classical utilitarianism, though countless others have made important contributions as well.

that their welfare is thus only worth promoting when humans stand to benefit. Rather, I acknowledge their intrinsic moral value without directly addressing it further.[10]

As previously mentioned, all sentient beings—including both non-human animals, and, most relevantly, people—are valuable for our own sake, and not as instruments with which to advance some more fundamental priority. This value derives from our capacity for subjective experience, which is the mechanism through which individual welfare is realized. Our subjective experience may be qualitatively "better" or "worse" for us—we may engage in meaningful work, enjoy close friendships, succeed or fail in certain endeavors, develop painful illnesses, and so on. The ways in which we are subjectively affected by these and the numerous other circumstances which comprise our lives constitute our individual welfare. This welfare is the "currency of concern" according to this utilitarian conception of morality—it is a concept which we may use to identify and "commodify" morally relevant circumstances, states, experiences, relationships, resources, and so on. In other words, these circumstances, states, experiences, relationships, and resources may be classified as morally valuable to the extent that they promote welfare. Throughout this project, I will examine the determinants of welfare for present generations in greater detail, isolate those determinants which governments may promote, and analyze the likely determinants of welfare for future generations.

It is important to note that this value system does not treat people as merely constitutive of—and morally secondary to—subjective experience, and by extension individual welfare. Rather, people "are" people in virtue of their capacities for subjective experience; put differently, subjective experience is both necessary and sufficient to constitute personhood. (This definition also endorses the personhood of nonhuman animals,

[10] For a more comprehensive examination of the implications of utilitarianism for non-human animals, see the works of Peter Singer, particularly *Animal Liberation* (published 1975).

but as previously stated, this project will exclusively use the concept of personhood to describe humans and their descendants.) People are not merely instrumentally valuable vessels which permit the existence and promotion of intrinsically valuable welfare; such a description mischaracterizes the nature of welfare. Instead, we are ontologically inseparable from our welfare: people, our experience, and our welfare are all one and the same. For instance, it would make little sense to tell someone that we care about their welfare, but not about them, as they are indivisible; to care about someone *is* to care about their welfare.

1.2 – Variations in Experiential Capacity and Equal Moral Value

We each enjoy a range of capacities which include various dimensions of intelligence, observational faculties, physical abilities, and so on. We possess these capacities in virtue of our nature as humans. Many of these capacities—emotional experience, sensory awareness, and others—are determinants of welfare, meaning that they facilitate positive or negative subjective experience. There are certainly variations between people in individual capacities for each determinant of welfare, as well as in the capacity for welfare itself. Regardless of whether we believe that conscious experience (and by extension the experience of welfare) is essentially a physical condition derived from brain activity or is related to the existence of a noncorporeal soul, for instance, there is a theoretical range of capacities for each dimension of experience, and these ranges are bounded by our humanity. This means that among all people—if we may conceptually quantify experience—there are theoretical minimum and maximum capacities for the enjoyment of welfare and its determinants.

Despite this, people are likely to be substantially similar in regards to these capacities. Though it is probable that some individuals are capable of greater levels of happiness than others, for example, we generally conceive of all people as being equally capable of experiencing happiness, and, in theory, equally entitled to its determinants. Additionally, all

subjective experiences—particularly those which constitute welfare, such as happiness or fulfillment—are impossible to measure. They are, by definition, intrinsic and inaccessible; the "closest" we may ever get to directly evaluating another person's subjective experience is to observe its objective indicators: behavior, feedback, neurological states, and so on. Even if happiness is entirely the result of physical processes in the brain, these processes are not "the same as" the subjective experience of happiness; they are ontologically distinct. Indeed, the concept of directly "viewing" another individual's subjective experience through our own cognitive "lens" is incompatible with the concept of subjectivity. While a full discussion about the implications of the mind-body problem for subjective experience evaluation falls beyond the scope of this project, this brief explanation illustrates the infeasibility of measuring individual capacity for subjective experience. I will therefore proceed under the basic assumption that all people share a roughly equal capacity for this experience (and by extension for individual welfare) and are thus equally morally valuable.

1.3 – The Determinants of Welfare

Having identified the basic currency of moral value according to this theory, I will discuss those factors which are constitutive of it. These may be divided into two categories: objective needs, which are general, and subjective preferences, which are specific. Objective needs include those prerequisites for sustaining life—and by extension subjective experience—which are common to all people: food, shelter, health, and so on. Objective needs also include general categories of experience which are (save a small number of outlier individuals) universally conducive to our welfare in virtue of our nature as humans, all else being equal: socialization, education, fulfillment, and so on.

On an individual basis, I classify the specific determinants of welfare as subjective preferences. People have unique desires under each of the objective categories: though

everyone requires food to survive, an individual may enjoy cauliflower more than broccoli. Certain people may choose to spend their time studying engineering, while others prefer literature; though education (generally conceived) is objectively beneficial for nearly everyone, particular subjects are more or less valuable to specific individuals in virtue of their subjective preferences. Many determinants of welfare thus fall under both categories.

People may, of course, be mistaken about the welfare-promoting suitability of their preferences—though I acknowledge that education is an objective determinant of welfare, and my theoretical welfare-promoting government's consequent support for universal quality education serves to increase the likelihood that each individual's subjective welfare-promoting preferences are well-informed. For the purposes of this theory, I will assume that each of us is most likely to know what is best for ourselves, and that all else being equal, fulfilling subjective preferences is more likely to promote welfare than leaving those preferences unfulfilled or imposing extrinsic requirements which are contrary to our preferences.

This means that it is the responsibility of my hypothetical government to address objective needs—that is, to provide or facilitate access to a range of services and resources which belong to general categories (such as food, housing, education, employment, healthcare, financial assets, and so on) which objectively contribute to welfare. Individuals may then choose specific options from among the range of services and resources which comprise each category based upon their subjective preferences. For instance, a government may ensure that affordable housing options are available in each major metropolitan area throughout a country and allow individuals to choose from among the options according to their preferences. The general availability of housing constitutes the gratification of an objective need, while the specific residences selected by particular individuals represent the fulfilment of their subjective preferences.

This is a fairly straightforward illustration of this welfare determinant classification method, though it may also be applied to scenarios which are less dichotomous. Environmental preservation represents a more dynamic example. In ensuring clean air and water, the protection of natural parks, and the responsible use of natural resources, for instance, my hypothetical government produces a vast set of conditions which may benefit specific individuals in countless ways. People may enjoy better health outcomes, appreciate scenes of natural beauty, have greater access to important resources, and so on. Though this does not represent the same one-to-one relationship between the general provision of a certain resource (such as affordable housing) and individual preference satisfaction (through the selection of a particular residence, for instance), it nonetheless embodies the same objective to subjective, general-to-specific welfare determinant classification scheme. Through environmental preservation, my theoretical government creates the conditions under which numerous objective needs may be satisfied, and the unique ways in which individuals benefit from these conditions constitute the fulfilment of their subjective preferences.

Indeed, this is the general way in which my hypothetical government will promote the various determinants of welfare: by providing the necessary resources to meet objective needs, broadly defined, and creating the conditions under which individuals may satisfy their subjective preferences. It is worth highlighting that the various determinants of welfare—both general programs and policies, and the specific ways in which they fulfill individuals' needs and preferences—are instrumentally valuable. Their moral content derives from the degrees to which they have a positive or negative impact on peoples' welfare. (Note that I will provide further justification for the invocation of government as an essential source for these welfare determinants in due course.)

1.4 – Applying Utilitarianism

Both the preceding definition of moral value as welfare—and the explanations which regard the various determinants of welfare as merely instrumentally valuable—are essentially utilitarian in nature. Their characterization of states within sentient beings as constitutive of moral value is fundamentally consequentialist, and indeed, "welfare" may be used interchangeably with "utility"—though I believe the former term is more closely and intuitively illustrative of the source of moral value. Utilitarianism thus conceives of actions, distributions, policies, programs, states of affairs, and so on—the previously discussed determinants of welfare—as morally "good or bad," or "right or wrong," depending upon their impact on welfare. If something is described as "good" or "right" in a utilitarian sense, this means that it promotes welfare to the greatest degree for the greatest number of people relative to available alternatives. This is a fairly common-sensical—though perhaps not intuitive—understanding of right and wrong. I contend that we follow specific moral principles because doing so most often results in the promotion of welfare, even if the principles are not typically justified in this manner. For instance, the principle of respect is predicated upon the implicit assumption that all individuals are equally worthy of moral consideration, and it requires us to treat each person according to their subjective preferences. In doing so, we implicitly promote their welfare. Respect, along with other common moral principles we regularly employ, is thus reducible to welfare promotion. In any event, I cannot conceive of a widely accepted moral principle which decreases welfare in most situations.

It is also worth noting that any references throughout this project to moral "obligations" or "duties," or claims that we "should" or "ought to" do something, are not meant to imply particular obligatory relationships between specific individuals. Rather, I occasionally use these terms in order to suggest that a particular program or course of action is likely to promote welfare to the greatest degree for the greatest number of people relative

to available alternatives. If our most basic moral goal is welfare promotion, and a course of action is likely to achieve that goal, then acting morally entails engaging in the course of action. In practice, promoting welfare often involves honoring specific obligations to particular people, but those specific obligations are only valuable insofar as they promote welfare, either for the individuals involved or for others. Particular obligations are thus instrumental to achieving this primary goal. I do not aim to defend the concept of moral obligation; I merely suggest that if an individual, government, or other entity wishes to act morally, they should engage in actions which promote welfare. Throughout this project I make the basic assumption that the hypothetical actors involved do intend to promote welfare, and thus have "obligations" or "duties" to engage in certain actions.

1.5 – Utilitarian Critiques

Despite its conceptual simplicity, utilitarianism is potentially controversial as a foundational ethical theory upon which to construct this project because it is vulnerable to numerous criticisms. These are based upon thought experiments which reveal unsettling conclusions which follow from the theory. For example, if we do not assume that all individuals are equally capable of experiencing welfare and are thus equally worthy of moral concern, we encounter the problem of the "utility monster."[11] This is an individual whose experience of welfare is so strong relative to the resources she consumes that in order to maximize aggregate welfare, we must simply provide her with as many resources as possible at the expense of everyone else. This would result in a greater net balance of welfare within this society than would a more equitable distribution of resources. Utilitarians typically reject the existence of such an individual as impossible, but admit that if one were to exist,

[11] This problem was originally proposed by Robert Nozick in *Anarchy, State, and Utopia* (1974).

utilitarianism would endorse the conclusion that we must promote her welfare over that of everyone else.

Additionally, pure utilitarianism's classification of various welfare determinants based solely upon their effectiveness in promoting welfare leads to the possibility of "illegitimate preferences."[12] If utilitarianism considers an action to be right simply because it produces the greatest net increase in welfare, this allows for the possibility that the theory may endorse problematic practices such as torture. This scenario assumes that the torturer derives sufficient pleasure to outweigh the victim's pain, meaning that the aggregate welfare between the two individuals would be reduced if the torture never took place. This is highly counterintuitive, and utilitarians typically respond that such a scenario could never actually happen. I argue that even if the torturer's pleasure exceeded the victim's pain in this specific example, the criticism takes too narrow a view in assuming that the only two options are "torture" and "no torture." Rather, it is likely that some other outcome—psychiatric assistance for the would-be torturer and ice cream for the would-be victim, perhaps—would result in a balance of welfare that is greater still.

Another common utilitarian thought experiment leads us to the "repugnant conclusion."[13] If we only care about the total amount of welfare within a society, it is conceivable that the best way to maximize this is to increase the population until each individual experiences the minimum positive amount of welfare based upon available resources. A society with one billion people who each experience a single net "unit" of welfare over the course of their lives would, according to utilitarianism, be preferable to a society with one million people who each experience 100 net "units" of welfare. The lives of each person in the second society would be 100 times better, but the first society would result

[12] Will Kymlicka examines this issue in *Contemporary Political Philosophy* (2002).
[13] Derek Parfit identifies this problem in *Reasons and Persons* (1984).

in ten times greater total welfare. This is the "repugnant conclusion"—that the welfare of each individual should be substantially reduced if it increases the total welfare within a society.

This criticism is particularly relevant to this project because if true, it presents the possibility that the best way for my hypothetical government to promote the welfare of future generations would be to ensure that they are as large as possible. I argue that this is implausible, and that there is more likely an ideal range of populations which would result in high levels of collective and individual welfare based upon an equitable distribution of available resources. Below a certain number, additional people would experience substantial amounts of welfare without meaningfully reducing the welfare of existing people; conversely, populations above a certain number may stretch resources so thin that each additional person reduces everyone else's welfare by a greater total amount than that individual will experience. Either way, our primary focus should be on promoting the welfare of individuals, as they are the most fundamental source of moral value. Again, it is the welfare of individual people—and not aggregate welfare as a subject-independent concept—that matters.

Chapter 2 – Defining Future Generations

2.1 – The Distant Future

In order to determine whether the interests of future generations are morally relevant and should be addressed by governments along with those of current citizens, I must first define the term. This is not as simple as it sounds—future generations are not confined to any particular set of individuals who come into being at a specific point in time. Rather, the temporal boundaries of this group begin immediately (with future people about to be born) and extend for as long as our ancestors exist. This classification therefore includes all future humans, along with any possible "post-human" beings which, given a long enough timeline, are likely to arise as a result of evolutionary processes or genetic modification. Indeed, if the human race survives for a long enough period, it is likely that we will either evolve or modify our biology over this period, and these changes may become significant enough for our ancestors to classify themselves as belonging to a species which is distinct from our own. Regardless, I will employ the term "future generations" in order to describe both future humans and possible future "post-humans."

This, of course, assumes that these ancestors retain their sentience and capabilities for the experience of welfare. It is difficult to imagine future people willingly abandoning these facilities (and, with them, their personhood, according to my definition). It is more likely that time and human intervention will serve to increase our experiential faculties. In particular, we have a clear incentive to increase our capacities for the experience of positive states such as happiness or pleasure. While the causal mechanisms which facilitate these experiences (and the factors—biological or otherwise—which demarcate the scope of our capacities) are complex and poorly understood, it is possible that future generations will gain the requisite knowledge to appreciably enhance their capacities for welfare. Even if we never deliberately engage in this sort of modification, many people value health, happiness, and other positive

forms of welfare—particularly in their partners—and such capacities may therefore be evolutionary advantageous. In any event, such species-level changes (either engineered or naturally occurring) are unlikely to take place in the foreseeable future. I will thus proceed under the basic assumption that the welfare-experiential capacities of future people will be substantially similar to those of present people, and that—as with present people—any variations between future individuals' capacities for welfare are morally negligible. This means that I will treat every person, either present or future, as equally worthy of moral concern.

2.2 – The Near Future

While the most distant "frontier" of future generations is conceptually straightforward—if unforeseeable—it is more difficult to clearly determine where future generations "begin." Our ancestors who live millions of years from now (assuming humanity endures for so long) will obviously belong among future generations, even if we can know almost nothing about them. However, the leading edge of future generations always exists precisely in the present moment, with those people who are about to be born. Future generations thus conceptually "flow" steadily into present ones. While it is possible to precisely identify the boundary between present and future people at any given time, it is not necessary to do so. Nor is it particularly useful for the purposes of this project. Rather, our moral concern derives from the welfare-experiential capacities of all people who are alive at each point in time, regardless of when they are born.

This also means that present people may, in a sense, belong to future generations for as long as they are alive. I do not wish to discuss problems of shifting personal identity or claim that present individuals may become qualitatively "different people" over time. Though these issues raise some interesting questions, they fall beyond the scope of this project.

Changes in present individuals over time are only relevant insofar as they affect those individuals' welfare determinants—their objective needs and subjective preferences. However, our hypothetical government's strategy of addressing needs and preferences in a general way (by providing access to a range of services and resources which individuals may utilize in virtue of their subjective preferences) should cover both differences in needs and preferences between individuals, as well as changes in each particular individual's needs and preferences over time.

Though they may be applied in a precise way, the concepts of present and future generations are most easily utilized as general categories with amorphous, overlapping boundaries. Despite referring directly to sets of people who are alive now versus "in the future," these concepts are more useful as ways to describe sets of people who have specific needs and desires or face particular problems. Once I address the moral relevance of future generations in greater detail, I will turn to the problem of promoting their welfare. This is when the distinction between present and future generations becomes most salient. The task of justifying moral concern for future people on utilitarian grounds is fairly straightforward; I will make this case in a subsequent chapter. The more useful and interesting application for this distinction is in identifying future problems which we have a present obligation to address. Present and future people likely share many of the same needs and preferences: food, shelter, health, education, and so on. Promoting welfare along these dimensions will probably entail similar actions and justifications, both now and in the future. However, certain problems (such as the more extreme effects of climate change or the impacts of new technologies such as advanced automation or artificial intelligence) are likely to increase in the future but have a comparatively minimal impact on most present people. If left unaddressed, these problems are predicted to substantially diminish the welfare of future generations, and present intervention is required (both logistically and morally) in order to

mitigate these impacts. The concept of future generations is thus most interesting as a means of identifying reasons (in the form of morally relevant future people) which oblige us to presently address these future problems. I will expand upon these issues in greater detail in subsequent sections.

2.3 – The Nonidentity Problem[14]

It is useful to note that future generations are predicted to exist in a general sense. By this I mean that we have no knowledge of any specific individuals who will come into being, but rather a general idea that there will be future populations with a vast plurality of interests. However, there will, of course, be specific individuals who comprise these future generations, even if we can know little to nothing about them. The amount we can know about each future individual diminishes as their conception becomes more temporally distant—or, more accurately, the range of possibilities (concerning future individuals' physical and mental conditions, the particular circumstances which comprise their lives, and so forth) increases with time. If two present individuals intend to conceive a child, that child's genetic composition is limited to some combination of the parents' genes, barring any artificial intervention. The parents' attitudes and preferences are also likely to influence that child's development, both before and after birth. While these factors still constitute a broad range of possibilities, it is still far easier to predict general information about the child—and the child's attendant needs and preferences—than to determine anything about individuals who will come into being in several hundred years or more.

[14] Gregory Kavka's *The Paradox of Future Individuals* (published 1982) and Derek Parfit's *Reasons and Persons* (published 1984) constitute some of the earliest and most widely cited explanations of the nonidentity problem.

This represents a deficiency in our ability to collect and process information in order to make predictions about (extremely complex) future events, but the events themselves—the creation of future people—will be specific. The nonidentity problem relates to this specificity. It suggests that attempts to improve the lives of people yet to be born will not actually benefit those people, but rather will result in the formation of different people entirely. In choosing to wait to have children until they are better able to support them, for instance, would-be parents are in fact choosing to have different children. It is likely impossible that the sperm and egg which would combine to form the couple's child when they are twenty years old are the same sperm and egg which would result in conception when the couple is thirty years old. If we assume that wrongdoing requires harm to a particular individual, then it is impossible to wrongfully have a child, even under adverse circumstances, because different circumstances would result in a different child. Seemingly harmful choices related to conception thus harm no one. (This assumes that the child's life is at least marginally worth living, but this is a very low threshold of welfare to provide.) In fact, it is impossible to harm or to benefit particular future people, because all actions which change the circumstances of their formation will result in different future people. This seems to suggest that we have no obligation to improve the welfare of future generations because in attempting to do so, we are not actually improving the lives of the particular people to come, but rather denying them existence in favor of alternative future people.

Utilitarianism securely sidesteps this issue by arguing that we have no moral obligations to particular people; rather, our obligation is to maximize welfare in general. This means that it is "worse" to have a child under adverse circumstances than to wait for more favorable ones (assuming these become available) even though no one in particular is made worse, because the favorable conditions result in a greater enjoyment of welfare by the resultant person. However, this can lead to several uncomfortable conclusions. If we have an

obligation to maximize the welfare of each individual, this suggests that we must identify the ideal conditions for each person before conception, during gestation, and after birth. This is an impossibly demanding requirement. Or perhaps our obligation is to maximize overall welfare regardless of individual experience. This may be best achieved by bringing as many people as possible into the world regardless of the circumstances, leading to the so-called "repugnant conclusion." However, as previously stated, "welfare" is not a subject-independent concept for which people are merely vessels; the capacity for the experience of welfare is constitutive of personhood, and it makes little sense to care about welfare without caring about individual people.

Rather, I argue that the nonidentity problem takes too narrow a view of action, decision-making, and the circumstances surrounding the formation of future generations. I concede that we have no specific obligations to particular future people, and it is likely true that decisions which are commonly thought to improve or worsen the welfare of future people actually result in the formation of different people altogether. However, nearly every action probably impacts which particular people will come into being, regardless of whether or not the action is deliberately intended to affect future people. There is no fixed set of future individuals who will be born if we refrain from intentional influence, because there are also constant, innumerable unintended influences. Nor do we "owe" any particular hypothetical future person existence. Rather, if we engage constantly in actions which will at every moment change the people to come, whether we intend to or not, acting morally requires us to attempt to maximize the welfare of people—both present and future—to the best of our ability.

Without perfect information (to which we will likely never have access), our general interest in acting morally may reasonably entail attempting to improve the welfare of future generations (for the sake of the particular individuals who are to exist, but without personal

obligations to them). For example, one member of the twenty year old couple may decide to attend a work event and thus delay the conception of their child by several days; though this decision was not made with the future child in mind, it nonetheless changes the identity of the child which will come into being. We make decisions like this all the time. Intentionally waiting to have the child until the couple is thirty and better able to support one—sparing the child certain hardships and improving its welfare relative to any potential child of the couple at twenty years old—is morally justified based upon available information. The suggestion that we have no interest in deliberately improving future peoples' welfare because these improvements produce different people ignores the fact that our actions constantly transform the people who are to come.

Chapter 3 – The Moral Relevance of Future Generations

3.1 – The Atemporality of Moral Value

Utilitarianism provides strong support for the moral relevance of future generations. The theory assigns moral value according to each sentient being's capacity for the experience of welfare, and, as previously described, the magnitude of that value corresponds to the being's unique welfare-experience capacity. For example, mice are valuable (assuming they are sentient), but humans are likely more valuable because they are probably capable of experiencing greater amounts of welfare. Of course, different people are likely capable of experiencing differing quantities of welfare. Given the aforementioned difficulties inherent in measuring and comparing such capacities, I will continue to treat all people as equally capable of experiencing welfare and thus equally worthy of moral concern. This welfare-experience capacity alone bestows moral value; two identical beings which possess equal experiential faculties are thus equally valuable, even if they live several hundred (or several million) years apart. Indeed, utilitarianism concerns itself with the welfare of sentient beings regardless of the time during which they exist, and thus endorses the moral relevance of future generations. The suggestion that present people matter more than future ones is inconsistent with our atemporal criterion of moral value; such claims, when they are made colloquially, are typically logistical assertions rather than value judgments.

Consider a particular university course which involves two exams, each worth fifty percent of the class grade. One is to take place in a week, while the other will take place in two months. Both are objectively equally valuable; it simply makes more strategic sense to prepare for the impending exam first. The same is typically assumed to be the case with present versus future people. When one argues that present people are more important than future people, one usually means that it is more important to address the needs and desires of present people first. This may be because one's interventions must take more immediate

effect in order to improve present (or near-future) welfare, or because more information about present people is available and our interventions are thus more likely to be effective. However, this argument says nothing about the relative inherent value of present and future people. Rather, if our hypothetical future people lived in the present, their welfare would be just as important to address as that of actual present people. While the immediate necessity of improving present welfare and the disparity between our information about present versus future people constitute strong arguments for focusing on the interests of present people, there are also compelling reasons to presently address future interests as well. I will examine these in due course.

Regardless, it is clear that in terms of pure moral value, each present and future person is equally valuable. This presents a theoretical problem for utilitarianism. If the welfare of present and future generations is equally important, and there will (likely) be far more people living throughout the future than there are in the present, the moral relevance of present individuals is "crushed" under the weight of future generations and becomes infinitesimally small as a portion of the total amount of welfare with which we should be concerned. If there are presently seven billion (equally valuable) people alive, and we choose to only concern ourselves with the welfare of present people, each person receives one portion of our concern in seven billion. However, if we concern ourselves with all future people as well—and randomly assume that there will be seven trillion present and future people throughout history—each present person's portion of our concern is reduced to one in seven trillion; the total portion of our concern allocated to people who are presently alive falls from the entire amount to one in one thousand.

3.2 – Allocating Resources

Of course, "concern" is a hypothetical concept of which we may have any quantity we assign, but this scenario illustrates the utilitarian problem with caring equally about all present and future people. It is discomfiting to consider that all present people together constitute an infinitesimal portion of all moral value. However, such an assessment is correct according to our theory of value, and, while perhaps unsettling, is not hypothetically problematic. A greater issue arises when we attempt to act morally by determining the magnitude of our personal welfare-promoting interventions using individual moral value. We have limited resources which may be used for the general promotion of welfare at any given time, and if we allocate them solely in virtue of moral value—and present people only account for a barely perceptible portion of this value—then only a small fraction of our resources may be consumed by present people; the rest must be saved for future generations.

There are many problems with this conclusion. It is impossible to accurately predict the number of people who will come into being throughout the remainder of history, and it is therefore equally impossible to determine the proportion of total moral value comprised by present people. At any rate, future people are likely to vastly outnumber present people, so the issue of resource allocation persists; if anything, this ambiguity supports a more parsimonious approach to resource usage for the sake of present welfare promotion because we cannot know how much future people will need. However, this approach ignores the necessity of prioritization, and oversimplifies the concept of "resources." As the example concerning class exams illustrates, it often makes sense to devote considerable resources to address immediate issues first, even when we know about issues of equal (or greater) importance which we will encounter later on. This is because many of our resources are renewable; using our time and energy to study for an exam now does not preclude us from

doing so again in a month. Similarly, housing which a government presently distributes to people may (in most cases) be reused by several subsequent generations as well.

These constitute very specific examples of resources, but the concept may be more broadly applied to include policies and programs in addition to traditional goods and services. Such policies and programs may govern the usage and distribution of traditional resources—food, housing, education, healthcare, natural resources, financial assets, and so on. The specific ways in which a government may allocate resources to meet the present and future needs of its people depend upon the particular needs and desires of those people, along with the methods which most effectively fulfill those needs and desires. Such empirical information falls beyond the scope of this paper (and likely represents a vast quantity of material which no single individual could reproduce). Instead, I will conceptually divide resources and practices into two categories: those which are renewable and sustainable, and those which are not.

3.3 – Sustainable Practices and Renewable Resources

For the purposes of this project, I consider practices to be relevantly sustainable when they preserve access to resources which will likely continue to be necessary or valuable during the foreseeable future. This involves encouraging the utilization of renewable resources in responsible ways. Reference is often made to sustainable practices and renewable resources in the context of environmental protection, and indeed, environmental depletion clearly highlights the necessity of sustainability. Certain practices, such as the utilization of fossil fuels for energy production, are clearly unsustainable because these resources are finite and nonrenewable. They also deplete other valuable resources, such as clean air, and have a measurably negative impact on the biosphere as a whole. Concern for the welfare of future generations straightforwardly endorses a prohibition on such damaging

practices. However, most practices are neither overtly sustainable nor obviously unsustainable but occupy a gray area. Wood is ostensibly a renewable resource, but excessive deforestation could lead to a (possibly temporary but nonetheless problematic) collapse of the wood supply; similarly, crops are renewable, but certain aggressive farming techniques may leave land infertile. In these and other resource areas, there are likely empirical limits to the levels of production and consumption which are sustainable. Governments may promote the welfare of future generations by ensuring that such practices are conducted sustainably.

Further complicating this discussion is the prospect of technological advancement. New techniques, materials, and technologies may increase efficiency in manufacturing and distribution; for example, wood construction may be supplanted by 3D printing as a sustainable and cost-effective method for housing production. Coal and natural gas may be set aside as fuels for power generation in favor of solar, wind, and other renewable sources which we did not have the technology to efficiently utilize a few decades ago. Such advancements make it difficult to determine which resources and practices should be preserved and encouraged for the sake of future generations, and which will be replaced by superior materials and methods. Nonetheless, it is clear that certain broad resource categories will continue to be necessary or valuable; future generations will need energy, housing, and access to a clean and stable environment, even if the particular ways in which these needs are met change over time. We may still promote sustainable practices based upon our best available information despite this ambiguity and avoid those practices which are clearly unsustainable.

It is easiest to justify the application of sustainability to those categories of need which are shared by present and future people. Requirements such as energy or food production may be presently met in ways which are either sustainable or unsustainable. The needs of present people may theoretically be fully met using either approach. Certain

categories—such as energy production—may currently be predominantly met in unsustainable ways, and shifting to sustainable practices in these areas often represents a current cost borne for the sake of future generations. There is likely room for the optimization of present practices in nearly every resource category, to greater or lesser degrees. Within each category, the current cost of producing resources represents the fulfilment of present needs, while the additional cost associated with the adoption of sustainable practices constitutes present resource allocation toward future welfare. For instance, the cheapest currently available method of crop growth may produce apples at fifty cents each, while a sustainable method would produce qualitatively similar apples at sixty cents each; in adopting the sustainable method, we spend ten additional cents per apple on the promotion of future interests.

Though this concept is most clearly illustrated through environmental impact, sustainability may be applied to non-environmental issues as well. In particular, certain economic systems may be considered more or less sustainable in virtue of their ability to equitably distribute resources. In nearly every society, capital is necessary to acquire the goods and services which facilitate individual welfare. We generally accept that gainful employment distributes capital in a way that is fair and efficient. However, drastic increases in income inequality and a growing concentration of wealth among a small group of capital holders suggest that this system may soon become insufficient to meet the needs of most people. Indeed, many peoples' welfare is not adequately promoted by our current system of resource allocation, and this problem is only likely to increase in the future. In particular, advances in automation and artificial intelligence represent an existential threat to many areas of employment, and it is unclear whether new job opportunities will sufficiently offset these losses. Concern for the welfare of economically disadvantaged present people—whose numbers are likely to grow across future generations if steps are not taken to mitigate the

employment-diminishing impacts of technological advancement—requires significant government intervention in the form of a universal basic income. I will review contemporary predictions about the estimated economic impact of this advancement and provide additional future welfare-promoting justification for such a program in subsequent sections.

3.4 – Present vs. Future Welfare Promotion

As the previous discussions regarding prioritization and sustainability illustrate, we do not need to allocate present resources between present and future people according to each temporal group's expected proportion of total moral value in order to act morally. Rather, we may devote the vast majority of our resources to promote welfare for present people while at the same time advancing the interests of future generations. Again, this is justified on primarily logistical grounds: the needs of present people are simply more urgent to address, and if these needs are met in ways which are sustainable, it is more likely that future generations will have access to the resources they need. These future resources may be the same resources which are utilized by current people (as with housing, perhaps), or the conditions necessary for the production of certain resources may be preserved (as with agricultural yields). At any rate, saving the majority of present resources for future use would fail to meet most present peoples' needs, and it is otherwise unnecessary given our proposed reliance on renewables.

Additionally, our theory of value endorses the conclusion that subsequent generations share our present responsibility to promote future welfare. Returning to the quantitative illustration of moral value, if we assume that a total of seven trillion people will exist now and in the future, then the total portion of value allotted to the seven billion present people amounts to approximately one in one thousand. If we were able to similarly quantify the welfare-promoting efforts of all present and future people—setting aside logistical arguments

for prioritization and sustainability—it would appear at first glance that present people should devote all but a fraction of their efforts to future welfare promotion. However, present and future generations do not constitute two distinct categories; nor can we dichotomize welfare-promoting efforts as taking place "now" or "in the future." Rather, all present and future generations—that is, the people who are alive at each point in time throughout the remainder of history—also have obligations to present and future people. This means that efforts toward future welfare promotion do not fall entirely upon present people but are divided among the vast number of future people as well. This allows present people to focus the majority of their efforts on present welfare, with the understanding that future people will do the same (assuming, of course, that these efforts are always sustainable and do not inhibit future efforts).

It is also worth noting that at any given point in time, present people are necessary for the creation of future people, and the intrinsic value of these future generations is thus derived from present people. This does not mean that present people are more valuable than future people; all people are equally morally valuable regardless of the time during which they exist. However, this does support the idea that it is logistically important to promote the welfare of present people, both for their own sake and in order to facilitate the creation of future value. We do not "owe" future people existence, but from a logistical perspective, improving present people is likely to improve future people as well; in most cases, there is a clear and demonstrable relationship between a parent's welfare and their child's welfare, and we may apply this correlation on a generational level. If present generations enjoy greater levels of health, happiness, security, quality education, fulfilling employment, and other hallmarks of welfare, it is likely that the welfare of future generations will be improved as a result. Present people thus contain intrinsic moral value, in virtue of their capacities for

welfare, and instrumental logistical value, in virtue of their essential roles in the creation of future generations and their impacts on the quality of future lives.

Both the concept of sustainability and the additional instrumental value of present people endorse the conclusion that it is acceptable to utilize the majority of available resources to promote present welfare despite the small proportion of overall value represented by present people. It is possible to conceptualize this by assigning a temporal weight to peoples' interests: as people approach the present, the importance of addressing their interests increases. This conclusion is further supported by the understanding that our knowledge of the factors which constitute future welfare—and the likelihood that our present interventions will successfully promote this welfare—diminish as future generations become more distant. It makes little sense to devote vast resources to projects which aim to improve the lives of people who will live millions of years from now, as we can know almost nothing about their needs or desires, even if their capacities for welfare remain relevantly similar (which is not guaranteed). Rather, meeting present needs sustainably increases the probability that future generations will have a wide range of resource-producing and welfare-promoting options from which to choose. This extends the concept of individual self-determination—providing people with a variety of resources with which they may promote their welfare according to their unique needs and preferences—to generations as well. Rather than attempting to determine distant generations' unique welfare determinants and specifically promote them, we may instead leave future people with a wide range of options.

In order to conceive of an ideal distribution of present resources, we may utilize the aforementioned temporal weight, which allows us to illustrate the extent to which we should presently address the interests of current versus future generations. We can visualize this temporal weight as the right half of a bell curve, where the x-axis represents time and the y-axis represents the importance of addressing the interests of people who exist at that time.

The interests of people in the present and near-future are most important, with priority decreasing and approaching (but never reaching) zero in the distant future. This curve represents the present importance of promoting the welfare of individuals who will exist at each point along the x-axis; as time passes, people (or generations) pass from the future to the present, but the shape of the curve (which always represents the priority distribution in the present) will never change. This can also be used as a tool for governmental resource allocation. At any given time, the resources at a government's disposal should occupy the space beneath this curve, with the x-axis representing both time and the policies and programs which promote the welfare of citizens who are alive at each point in time, and the y-axis representing resource amounts. Current efforts to promote sustainability represent a portion of the space beneath the curve which increases with time. That is, sustainability promotion constitutes a small portion of the overall resources currently utilized to promote present welfare (under the largest portion of the curve, closest to the y-axis), but it represents almost the entirety of current efforts to promote welfare in the distant future (under the increasingly small portion of the curve, as it approaches the limit or x-axis).

3.5 – Intergenerational Discounting[15]

The obligation to presently promote future welfare—particularly in the form of current resource allocation toward future interests—is sometimes challenged on the grounds that future people are likely to experience greater levels of welfare than do present people. This argument, which is based on historical trends, suggests that each generation experiences an overall quality of life which exceeds the previous one's, and that the most disadvantaged future people will be better off than the most disadvantaged people in the present. Allocating

[15] This problem is addressed in greater detail in Thomas Schelling's *Intergenerational discounting* (1995).

present resources for the promotion of future welfare thus amounts to a transfer from those who are worse off (in the present) to those who are better off (in the future). This is only justified if the marginal increase in benefits accrued over time exceeds the loss to present people. For example, let us assume that we have one million resource units with which to improve the welfare of the worst-off people, either now or in the future. We may either distribute these resources to presently disadvantaged people and improve their welfare by two welfare units per resource unit, or invest the resources in a program for future people. Because the worst-off future people will be significantly more prosperous than the worst-off present people, each resource unit will only improve their welfare by a single welfare unit. This means that the future investment program is only justified if it more than doubles the resource units for future people; we are therefore "discounting" the likely impact of our present intervention on future welfare, and consequently the importance of presently promoting future interests.

One may argue that this illustration oversimplifies the nature of resource allocation. In most real-world cases, there is no fixed pot of money to be allocated toward identical but mutually exclusive present or future poverty alleviation programs, for instance. Future lives are not improved at the direct and obvious expense of the presently needy. Rather, most efforts to improve future welfare involve contributions or sacrifices from today's most affluent societies. Medical and scientific research is typically funded by institutions in wealthy countries; similarly, programs to curb damaging emissions are more often established in developed nations. However, these efforts all involve clear economic costs: it is more expensive to produce energy sustainably than to use fossil fuels, and the choice to invest in such programs represents a clear prioritization of future interests. On a more individual level, the extra money spent on an electric rather than a gasoline-powered car is an investment in environmental protection for the sake of future people; these funds could

otherwise have been donated to current hunger relief efforts. But present versus future welfare promotion is not a zero-sum game. It is almost certain that a more efficient allocation of resources would allow us to improve the welfare of the neediest present people while preserving the environment for future generations, for instance. This may require greater contributions from the wealthiest people, but their marginal decreases in welfare are likely to be greatly outweighed by the welfare increases enjoyed by the worst-off, both present and future.

The discounting argument takes issue with the conclusion that it is worthwhile to make present sacrifices for future welfare. The point is most easily made when we compare identical efforts: it is clear that we should not simply save funds for the alleviation of future hunger when present people are starving, and future people are likely to be more prosperous on average, if history is any indication. At any rate, I have already defended the conclusion that we should utilize the majority of present resources on efforts to improve the welfare of present people, and this ideally includes hunger relief. Rather, the suggestion that we should discount future welfare calls into question whether any present resources should be allocated toward the promotion of future interests at all. If future people will be better off than present ones at each level, then why should we invest our resources for future benefit when present expenditures will have a greater impact on welfare? However, this treats continued societal advancement as a foregone conclusion. It ignores the fact that each generation has historically been better off than previous ones because those previous generations invested in technology, medicine, infrastructure, scientific research, environmental protection, and so on, and advancements in these and other areas improved future lives. Even if we have created programs which were primarily justified for the sake of short-term benefits or in terms of their immediate impacts—such as with the implementation of automotive safety standards,

which were intended to immediately lessen the frequency and severity of injuries[16]—those advancements also regularly accrued benefits to future generations. In many cases, programs (such as for medical research) are explicitly justified in terms of future benefits, at least in part. If we cease to consider future welfare and allocate all present resources to exclusively meet the needs of present people without any regard for future interests, we run the risk of slowing or stopping our intergenerational welfare-promoting progress. After all, this progress is not guaranteed, and certain recent developments—including rapid environmental degradation and skyrocketing wealth inequality—threaten to reverse it.

[16] Hendrickson, "National Traffic and Motor Vehicle Safety Act."

Chapter 4 – The Role of Government

4.1 – Overcoming Collective Action Problems

In order to undertake projects which promote welfare on the grand and temporally indefinite scale necessitated by our concern for present and future generations, planning and organization are clearly required. In order to promote present welfare, we must ensure that people have access to resources (food, housing, education, employment, healthcare, financial assets, and so on) which meet basic needs common to all citizens and facilitate individual self-actualization by providing the freedom and tools to navigate life according to each individual's own preferences. In order to promote future welfare, we must ensure that these present resources are produced sustainably. We must also anticipate and attempt to mitigate future problems which will become increasingly difficult to solve without imminent intervention (such as the impending inadequacy of our resource distribution system) to the best of our ability. Such projects are ambitious and complex, and large-scale cooperation (involving resource contributions from each member of society) is necessary to tackle them. However, this presents a problem.

A society which provides a range of goods and services to its citizens is, all else being equal, more likely to effectively promote the welfare of its citizens than one which does not. Depending upon the method of resource allocation, it is likely that the majority of people would be better off in the actively welfare-promoting society. However, different people have different preferences and priorities, and certain of the goods and services under provision may therefore be more or less valuable to particular individuals; consequently, certain programs may receive higher or lower levels of support. The preferences and priorities which determine each individual's willingness to contribute to each program may be unrelated to that program's effectiveness at overall welfare promotion.

Consider a society in which less than one percent of the population has a painful and debilitating disease. This disease substantially diminishes the welfare of the people who suffer from it, and several billion dollars in medical research funding is necessary to synthesize a cure. However, it is most prevalent among the poorest members of this society, and the wealthiest people—who are highly unlikely to have the disease or know anyone who suffers from it—are unwilling to fund the research. The reduction in personal capital necessary to cure the disease would precipitate a miniscule decrease in the welfare of these wealthy citizens, and this loss would be greatly outweighed by the benefits accrued to those with the disease. Or, on a smaller scale, consider a neighborhood in which the properties are arranged in a circle, and each property's substantial yard adjoins a small patch of public land in the center. The municipality has apportioned funds for the construction of a park, but the size of the public land is insufficient to complete the project. Each property owner would need to relinquish control over a small portion of their land to enjoy the benefits of the park, and these benefits would substantially exceed the utility of the ceded land for every owner. However, due perhaps to the captivating potency of property ownership or disagreements over park-related details, none are willing to give up the necessary real estate. This outcome results in a lower amount of welfare for each person than would the construction of the park, but the owners are nonetheless disinclined to participate.

These are examples of collective action problems. Note that this type of problem does not call into question the objective moral superiority of a society which promotes the welfare of its citizens; rather, it addresses a logistical obstacle to achieving such a society. Due to any number of possible motivations, individuals may be unwilling to contribute to or participate in cooperative ventures which would increase individual or collective welfare (or both). This issue is often raised in conjunction with the concept of public goods—resources to which all members of a society have access, and from which they may all benefit. Certain public goods

require contributions from members of the society, as with the example of the park. However, the unrestricted nature of certain public goods introduces the issue of free riders, or individuals who enjoy these goods without making the contributions necessary for their creation or maintenance. Perhaps a single landowner refuses to contribute the small portion of her property to the park project with the knowledge that the park will be created anyway. The municipality is unable to restrict her access to the park, and she is therefore able to benefit from it. This represents a sort of unsustainable practice: if each member of a society assumes that everyone else will bear the burden of creating and maintaining public goods, insufficient resources will be made available, public goods will diminish or disappear, and everyone will be worse off.

While it would be impossible to determine the welfare impact of each collective action project on each member of society, it is clear that societies which provide public goods are categorically more effective at welfare promotion than are societies which do not, all else being equal. Indeed, the costs of participating in a society which actively provides welfare-promoting goods and services are far exceeded by the benefits on an individual basis. Additionally, the benefits of certain present projects, including those which promote sustainable practices, may be enjoyed indefinitely by future generations. These net welfare-increasing effects of collective action projects justify intervention to prevent free riders and ensure that sufficient resources remain available.

4.2 – Justifying Government Interventions

Governments are a useful tool with which to solve these collective action problems and may rightly be understood as legitimate in virtue of their capacities for welfare promotion. Indeed, they are necessary for the promotion of individual welfare and the attendant provision of resources in any society, and they may achieve these objectives

through a system of enforced rights and obligations for their citizens. The specific details which comprise such a system depend upon the characteristics of each population, including needs, preferences, and so forth; such information is extraneous to the theoretical justification for government intervention provided herein. Regardless, the existence of governments is clearly supported on utilitarian grounds: they are mechanisms for addressing problems of justice, security, collective action, resource allocation, long-term versus short-term interests, and so on, given that these problems are central to the maintenance of individual welfare in any society. This collective interest in improving welfare can be considered the moral raison d'etre of governments.

At a basic level, the benefits of collective action (particularly a system of authority which permits the arbitration of disputes) have been well-supported, but our standard of utilitarian welfare promotion sets the bar a great deal higher than achieving a minimally post-natural state. I have previously outlined the various ways in which governments may advance the welfare of their citizens. Given that the specific conditions which improve each individual's welfare are endlessly variable and subject-dependent, governments may promote welfare when they create programs and distribute resources which meet objective categories of need common to all citizens, thereby facilitating individual self-actualization by providing the freedom and tools to navigate life according to each individual's subjective preferences. We can boil this down to a question of complex resource allocation, given our broad conception of resources which includes not only material goods but also services, positive and negative rights, opportunities, and so on. In many societies, this resource distribution relies substantially upon a system of capital: most goods and services must be purchased with money earned from employment or investment, and government initiatives are funded through taxes on income, expenses, property, and so on. Given the importance of this system, governments have a strong interest in maintaining its integrity, as the needs of people would

quickly overwhelm government resources were the capital-based distribution system to collapse. Indeed, one of the ways in which governments look after the welfare of their citizens is by regulating financial markets and stimulating economic growth; this constitutes the (attempted) promotion of present and near-future interests.

Governments also have obligations to promote the welfare of future generations; these obligations extend from our common moral interest in maximizing welfare regardless of the time during which people are alive. In particular, the previous arguments for renewable resources and sustainable practices encompass governments as well. Governments are in a unique position to promote sustainability in virtue of their extensive power and influence, along with their theoretical capacity to prioritize long-term interests and the common good over short-term considerations. Promoting sustainability typically takes the form of environmental protection initiatives, but we may also conceive of cultural, social, and economic applications for sustainability. For instance, the preservation and cultivation of art, music, and other beneficial cultural practices, which are often considered to be essential contributors to individual flourishing, constitute present efforts to ensure future access to these resources. Similarly, a society in which tolerance, pluralism, and other inclusive principles are promoted is more likely to endure—and to promote the welfare of all its citizens—than a society dominated by discrimination, racism, and short-sightedness. An economic system which distributes increasingly large amounts of capital to an increasingly small portion of the population is likewise unsustainable. Environmentalism has of course been thoroughly justified on the grounds that it is essential for the promotion of future welfare, but these other areas of sustainable practice are also important to future interests, though this importance is explicitly acknowledged less often. Despite this, government efforts to promote sustainability in these and other areas constitute adequate and well-supported expressions of concern for future generations. Indeed, the arguments in previous

sections which suggest that it is unnecessary to set aside substantial resources for the exclusive benefit of future people apply to governments as well. These sustainability-promoting initiatives thus meet our standards of concern for future welfare without significantly sacrificing the welfare of present people.

4.3 – Decision-Making Under Uncertainty

Sustainability is a somewhat vague term, and while we may have a general idea of the sorts of programs and initiatives which are sustainable, it is far more difficult to determine the specific interventions which are required to actually achieve sustainable practices. While this is an empirical question, governments may encounter numerous theoretical issues in answering it. One of these is known as the precautionary principle.[17] The principle states that in determining future courses of action—technologies to develop, initiatives to promote, and so forth—we should err on the side of caution and avoid risks which are unknown but potentially disastrous. For example, while nanotechnology has the potential to revolutionize manufacturing, cure debilitating diseases, and substantially improve quality of life, there is also an unknown but nontrivial chance that it could result in the complete destruction of humanity. The precautionary principle suggests that the existence of this catastrophic risk should preclude us from pursuing this technology until the potential consequences are better understood and may be fully mitigated.

Given our limited ability to accurately predict the consequences of any action, however, this sort of analysis may become untenably restrictive. Even a seemingly inconsequential event—a particularly inflammatory tweet, for instance—could result in immense harm, in the form of a global conflict, perhaps. In its strongest form, then, the

[17] Cass Sunstein provides a compelling critique of the principle in his 2003 article *Beyond the Precautionary Principle.*

precautionary principle forbids most any action which deviates from the status quo. However, we are aware of certain impending threats, including that of climate change, which will cause significant damage if we do not take extensive corrective action. The precautionary principle fails to provide guidance under such circumstances. The continued use of fossil fuels will almost certainly result in global changes to the climate which will harm billions of people, beginning in the near future and extending indefinitely. However, the adoption of alternative forms of power generation—including the proliferation of nuclear energy—could also result in catastrophe. Nuclear plants could malfunction and irradiate surrounding populations, or mismanaged waste could poison land for thousands of years. A reduction in demand for fossil fuels could destabilize countries whose economies rely on their production. There are therefore risks to both action and inaction, and we cannot determine with absolute certainty which approach is more likely to cause greater harm. Indeed, most scenarios are like this. Though it is easiest to conceive of the threats presented by nanotechnology, the decision to abandon its development could have dire consequences as well. Suppose humanity encounters an incurable superbug which wipes out our population, but nanobots could have easily eliminated this disease. No matter our decision on this and other issues, humanity may theoretically face existential risk.

Given these shortcomings, then, we may largely dismiss the concerns raised by the precautionary principle using counterarguments which are similar to those employed against the nonidentity problem. As with future people, there is no preordained, risk-free future which will materialize if we avoid certain potentially dangerous courses of action, just as there is no specific set of people who will come into being if we do not attempt to influence their welfare. Everything we do carries potential benefits and drawbacks and influences the future in unknowable ways. We should thus proceed with projects which are likely to improve future welfare, acknowledging and attempting to mitigate their inherent risks using

the best information available. This constitutes a "weak" form of the principle, which essentially just tells us to be careful.

In addition to risks, governments must also consider probable benefits in choosing between various options. Given a limited number of resources to allocate in order to solve a wide variety of problems, governments must evaluate both the likelihood and magnitude of these benefits. Often these two considerations may be at odds. For example, consider a government which has allocated a fixed portion of its budget to improving health outcomes. It may choose to invest the funds in a program which distributes medicine proven to cure a painful but non-fatal disease from which one percent of its population suffers, or it may instead fund cancer research. The medicine distribution program has a high probability of success, but the anticipated benefits are limited; conversely, the cancer research program is highly unlikely to cure cancer, but if it did, the benefits would be vast.

There is no clearly correct way to make this decision. One possible theoretical solution is to determine the expected welfare returns on each possible investment. If there is a 99.8% chance that the medicine distribution program prevents five "units of suffering" per person for ten million recipients, the expected welfare return from this program amounts to 49.9 million units. If there is a 0.001% chance that the cancer research program cures cancer and prevents twenty "units of suffering" per person for one trillion people throughout the remainder of history, the expected welfare return from this program amounts to 200 million units. This method seems to clearly suggest that the funds should be used for cancer research, but it somewhat mischaracterizes the likely outcomes. Put in different terms, the medicine distribution program is almost certain to substantially increase welfare, whereas there is a 99.999% chance the cancer research program yields no benefits—and exacts an opportunity cost of 49.9 million welfare units thanks to a lack of funding for the medicine distribution program. At any rate, it is impossible to precisely measure probabilities, welfare impacts, and

future events, so a definitive calculus is impossible. Barring vast improvements in our predictive capacities, we are presently forced to conclude that there is no single "right answer," but rather a range of options which are all morally acceptable in virtue of their informed intentions to promote welfare.

Chapter 5 – Establishing a Universal Basic Income

5.1 – Automation, Artificial Intelligence, and Economic Inadequacy

As previously mentioned, our current capital-based resource distribution system constitutes an important area of government intervention for the sake of sustainability and future welfare. Most countries rely upon capitalism to drive their economies and distribute resources to their citizens, to varying degrees. Though many nations also have welfare programs which provide necessary support, this support is typically supplemental to private resources which citizens acquire through investment or gainful employment. Additionally, these welfare programs are generally funded through taxation or investment income, and therefore rely upon the global capitalist economy. Indeed, no country has been fully immune to the effects of economic globalization: in 2016, international trade accounted for no less than 22% of GDP for every country for which there was data available, with a global rate of 56.442%.[18] The global economic system has therefore become indispensable to the provision of resources in every country, whether directly (through individual participation in the economy) or indirectly (through government programs, which rely upon economic activity for funding). Direct economic participation has precipitated increases in wealth inequality, due in part to the impact of automation.[19] In most cases, redistributive government welfare programs have been unable to reverse this trend: during the last thirty years, global average individual wealth has grown 1.9% per year, while the average wealth of the top 0.01% has grown by 5.6% annually over the same period.[20] This means that as of 2017, the richest 1% of people worldwide owned 50.1% of all global wealth.[21] In fact, the eight wealthiest individuals now have combined assets equal to those of the poorest 3.6 billion people.[22]

[18] "The World Bank: Trade (% of GDP)."
[19] Wright, "Government Urged to Act over Automation Inequality."
[20] Alvaredo et al., "World Inequality Report 2018."
[21] Neate, "Richest 1% Own Half the World's Wealth, Study Finds."
[22] Elliott, "World's Eight Richest People Have Same Wealth as Poorest 50%."

So far, the jobs lost to automation have largely been replaced by new forms of work, and the net global employment rate has mostly been uninfluenced by technological advancement, even if these changes have served to concentrate wealth in the hands of a few capital holders. From 1992 to 2017, worldwide unemployment shifted slightly from 5.636% to 5.521%[23] despite significant automation-driven sectoral realignments. In the United States, for instance, "manufacturing fell from 26 percent of total US employment in 1960 to below 10 percent" in 2017, thanks largely to automation, but losses in this sector were offset by substantial increases in trade, education, healthcare, and other industries.[24] However, changes in the nature of automation—particularly computer automation and the advent of artificial intelligence, or AI—threaten to disrupt these counterbalancing trends. Until recently, computers and machines were only able to complete repetitive or rule-based tasks, which limited the sorts of jobs they could replace. But increasingly sophisticated robots, software, and machine learning algorithms—or programs "trained" to complete specific but novel tasks such as image recognition or language translation—now threaten to supplant a much wider variety of professions.

While there is no single consensus on the long-term effects of automation on employment and wealth inequality, there are numerous estimates which suggest that significant percentages of jobs—and sets of individual tasks—are susceptible to automation. In 2013, researchers at Oxford University examined 702 occupations in a comprehensive review of the United States workforce and found that 47% of U.S. employees work in a field which is at "high risk" of automation within the next 20 years; these fields notably include transportation, logistics, administrative support, and the service sector.[25] The European economic policy think tank Bruegel estimated in 2014 that 54% of all jobs across the EU are

[23] "The World Bank: Unemployment, Total (% of Total Labor Force)."
[24] Lund and Manyika, "Five Lessons from History on AI, Automation, and Employment."
[25] Frey and Osborne, "The Future of Employment."

threatened by computer automation.[26] A 2015 report by the consulting firm McKinsey & Company focused on "work activities" rather than entire professions, and found that 45% of all employment-related tasks can be automated using existing technologies; this number would increase to 58% if natural language processing software reached human performance levels. They also discovered that for 60% of occupations, at least 30% of the work may presently be completed by machine.[27]

There are, of course, some skeptics: a 2014 Pew Research Center questionnaire asked 1,896 technology experts whether they believed AI, roboticization, and other forms of automation will eliminate a greater number of jobs than they will create by 2025. 48% of respondents feared this would be the case, while 52% suggested there would be no automation-precipitated decline in employment. Many of the 48% predicted that significant numbers of both blue and white-collar workers will be rendered unemployable, and that inequality will skyrocket as a result. The other half argued that while many present jobs will no longer exist, we will probably create new forms of employment to offset the losses. Both groups agreed that the nature of work will fundamentally change, and that we will need to overhaul our social institutions—and particularly our education systems—in order to prepare people for these changes.[28] It is notable that nearly all respondents—regardless of their prediction—indicated that significant intervention would be necessary to offset the unemployment and inequality-exacerbating effects of these technologies.

Based upon these forecasts and estimates, as well as the extraordinarily high present (and increasing) levels of wealth inequality, it is clear that our capital-based system of resource distribution will soon become insufficient to meet the needs of future people; concern for their welfare thus requires us to find an alternative. I do not intend to suggest that

[26] Bowles, "Chart of the Week."
[27] Chui, Manyika, and Miremadi, "Four Fundamentals of Workplace Automation."
[28] Smith and Anderson, "AI, Robotics, and the Future of Jobs."

technological innovation is inherently detrimental, or that it should be curtailed for the sake of forestalling unemployment increases and preserving the current economic order. Indeed, technology-driven growth in worker productivity could theoretically permit individuals to spend less time working and more time on rewarding pursuits which would increase their welfare. However, this would require a significant change to our present resource distribution methods so that all people, present and future, could share in the fruits of humanity's collective technological labor. It stands to reason that without this kind of substantial intervention, the benefits of automated productivity will accrue to business owners, shareholders, and other elites, further increasing their already substantial share of assets at the expense of the global majority.

5.2 – UBI as a Sustainable Practice

A universal basic income, or UBI, constitutes a promising theoretical solution to the problem of inequitable resource distribution, whether this inequality is precipitated by rising unemployment, stagnating wages, or some other means. There are many possible forms a UBI could take, depending upon each country's wealth, the needs of its population, the cost of living, and other factors. Note that various other types of programs—including a negative income tax, which would modify existing progressive taxation systems by establishing an earnings threshold above which taxes are paid and below which income is distributed[29]—would achieve similar results to a UBI using different operational methods. I will use the term UBI to refer to all such programs; the specific methods of implementation are extraneous to this discussion. However, I generally conceive of such a program as supplying each adult citizen with enough income—provided on a monthly basis—to raise them above the poverty line. Under this ideal scenario, the poverty line represents the total cost of

[29] Shindler, "Replace Welfare With a Negative Income Tax."

meeting basic needs such as food, housing, and so on. (Though I also consider healthcare and education to be basic needs, such services would be provided separately and universally by the government, and it would therefore be unnecessary to include their cost in the calculation of a poverty line.) This poverty line would vary geographically according to the cost of living in each area: it is far costlier to secure food, shelter, and other basic necessities in London than in Budapest, for instance.

Establishing such a system would certainly be expensive, but it is commonly intended as a replacement for many existing welfare programs which individually tackle specific areas of need such as food or housing. The combined funding of these obsolete programs would partially offset the cost of a UBI. This system avoids the administrative difficulties of having to demonstrate need and meet the numerous restrictive if well-intentioned conditions which often accompany aid, particularly in the United States: engagement in an active job search, the use of funds for specific items, the absence of any criminal record, and so forth.[30] A UBI would also eliminate the so-called welfare traps which are a common feature of many current welfare programs. Under such programs, benefits are typically only available to people below a certain income level. Once they exceed that level, even by a small amount, they become ineligible for benefits and effectively experience a significant net income decrease. This disincentivizes welfare recipients from pursuing opportunities which would place their income within a certain elevated range.[31] In order to avoid this problem, a UBI would be equally distributed to all adult citizens regardless of income. This would operate in conjunction with a progressive tax structure, which would effectively begin to phase out the UBI above a certain income level. This income tax—combined with a tax on wealth exceeding a certain amount—would provide a significant portion of the revenue for a UBI,

[30] "Where the Work-for-Welfare Movement Is Heading."
[31] Flowers, "What Would Happen If We Just Gave People Money?"

along with the introduction of a corporate tax on the productivity of robots or software should automation substantially replace human jobs.[32] This would ensure that the benefits of automation are distributed to all citizens and not enjoyed exclusively by capital holders.

Of course, I do not propose the complete abandonment of all other forms of government assistance in favor of a UBI. Populations inevitably have a wide variety of needs, and there are likely to be people with expensive requirements—linked to certain disabilities, perhaps—which a UBI is unable to meet. However, the universality of a UBI—particularly one which lifts all adult incomes above the poverty line—means it would likely eliminate most of the demand for other forms of assistance. Consequently, it would also eliminate the impending need to expand existing welfare programs to cover the increasing number of people affected by inequality, automation-driven or otherwise. Despite these benefits, some have criticized a UBI on the grounds that it could cause inflation, effectively increasing the cost of living by the amount of the UBI and eliminating its benefits. However, a UBI would serve to redistribute existing capital rather than introducing new money into the economy, thereby avoiding inflation.[33] Indeed, studies on the effects of cash transfers have demonstrated little to no impact on prices.[34] Governments could further ensure that the benefits are fully retained by indexing UBI to inflation—or, more fairly, to a measure which captures increases in economic productivity such as GDP per capita. This would guarantee that all citizens share in automation-driven returns regardless of capital ownership.

In addition to these logistical considerations, there are many social and welfare-related benefits to instituting a UBI. Rather than relying upon a patchwork safety net of overlapping welfare programs which restrict personal autonomy and fail to meet many

[32] Abbott and Bogenschneider, "Should Robots Pay Taxes? Tax Policy in the Age of Automation."
[33] Santens, "Wouldn't Unconditional Basic Income Just Cause Massive Inflation?"
[34] Matthews, "A New Study Debunks One of the Biggest Arguments against Basic Income."

needs,[35] everyone could count on a basic set of resources, which would permit people to promote their own welfare according to their subjective preferences. This economic security would also allow people to be more selective regarding employment without the fear of privation. Though some have criticized UBI programs on the grounds that they could result in labor reductions (setting aside the ironic possibility that automation-driven unemployment may itself necessitate the implementation of a UBI), studies have demonstrated little impact on employment. Access to a UBI may reduce the hours primary earners choose to work by up to seven percent, but it may also have a positive effect on wages, which could offset any reduction.[36] Regardless, it would be economically impossible to implement a UBI large enough to substantially diminish the common incentive to work, either for the inherent rewards or in order to improve one's economic condition yet further.

Beyond employment-related matters, the benefits of economic security are considerable. People would have greater flexibility to spend more time with their families, continue their education, or pursue their own interests in other ways. Additionally, studies on the impacts of cash transfers have demonstrated that the funds are commonly invested in healthcare, improved nutrition, education, and savings,[37] despite concerns that people would use their UBI to purchase alcohol and other so-called "temptation goods." Indeed, cash transfers have been shown to actually reduce alcohol consumption rates.[38] They have also been revealed to substantially improve psychological wellbeing.[39] In addition to these inherent benefits, such reductions in economic anxiety would likely limit the fear-driven appeals of populism and isolationism,[40] leading to a more tolerant, inclusive society. While

[35] Moffitt, "The Deserving Poor, the Family, and the U.S. Welfare System."
[36] Widerquist, "A Failure to Communicate."
[37] Hagen-Zanker et al., "Understanding the Impact of Cash Transfers: The Evidence."
[38] Evans and Popova, "Cash Transfers and Temptation Goods."
[39] Haushofer and Shapiro, "The Short-Term Impact of Unconditional Cash Transfers to the Poor: Experimental Evidence from Kenya."
[40] Snegovaya, "The Economic Origins of Populist Support."

most existing studies have not been sufficiently rigorous to provide conclusive support for each of these UBI-related benefits,[41] tentative results have nonetheless been promising.

The implementation of a UBI (or some other redistributive program which would provide universal economic security in perpetuity, such as a negative income tax) would constitute a sustainable solution to the problem of economic inequality. It would serve to counteract the increasingly asymmetric resource distribution facilitated by our current system. Likewise, it would perpetually ensure that all people have the resources to meet their objective needs and the freedom to promote their welfare according to their subjective preferences despite the potentially disruptive advent of automation. Given its impending threat—along with the significant and growing problem of inequality—government concern for future generations necessitates the adoption of a UBI. Such a program would still rely upon the global capitalist system, and we would therefore retain its valuable incentives to innovate and improve; we would simply ensure that its benefits are more evenly shared by all. These economic benefits would likely pay dividends in the form of increased present and future welfare, and subsequent generations would not have to contend with the growing burdens of scarce employment and insufficient resources.

[41] Widerquist, "A Failure to Communicate."

Conclusion

With this project I have sought to examine the implications of utilitarian morality for future generations. Utilitarianism endorses a conception of moral value as a function of sentience; welfare thus refers to morally relevant subjective conditions within sentient beings. This definition confers moral value to all people, both present and future, in equal measure. While it is likely that the total number of future people (and their corresponding moral value) will far exceed the present population, it is unnecessary to set aside present resources exclusively for future welfare promotion. This is because the needs of present people are more urgent to address, and doing so typically does not preclude future people from doing the same. Likewise, the obligation to promote the welfare of future generations is shared by future people. However, concern for future welfare does require us to meet present needs sustainably so that a wide range of resources remain available for future use. Governments, which are necessary to overcome collective action problems and provide public goods for the sake of welfare promotion, share our common moral obligation to promote sustainability.

While sustainable practices are most often advanced in the context of environmental protection, they may also be applied in other areas. In particular, our present capitalist economic system of resource allocation is facilitating drastic increases in wealth inequality. This reduces the share of resources available to most people for the sake of welfare promotion. Accelerated workplace automation—along with the advent of AI—are likely to exacerbate this inequality yet further. Without corrective intervention, our resource allocation system will soon be insufficient to meet the needs of most people and is therefore unsustainable in the long term. Concern for the welfare of future generations, expressed through our collective commitment to sustainable practices, necessitates government action in the form of a redistributive UBI. Such a program would counteract the economically deleterious effects of automation and ensure that all people—present and future—can enjoy

sufficient economic security to promote their own welfare according to their subjective preferences.

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