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Life-extension and the Malthusian Objection

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The worst possible way to resolve this issue is to leave it up to individual choice. There is no known social good coming from the conquest of death (Bailey, 1999).

—Daniel Callahan

Dramatically extending the human lifespan seems increasingly possible. Many bioethicists object that life-extension will have Malthusian consequences as new Methuselahs accumulate, generation by generation. I argue for a Life-Years Response to the Malthusian Objection. If even a minority of each generation chooses life-extension, denying it to them deprives them of many years of extra life, and their total extra life-years are likely to exceed the total life-years of a majority who do not want life-extension. This is a greater harm to those who want extended life than the Malthusian harms to those who refuse extended life, both because losing an extra year of life is worse than enduring a year of Malthusian conditions, and because the would-be Methuselahs have more life-years at stake. Therefore, even if life-extension seems likely to cause severe overcrowding and resource shortages, that threat is not sufficient to justify society in restricting the development or availability of life-extension.

Keywords: *immortality, life-extension, Malthusian, prolongevism, prolongevity*

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I. INTRODUCTION

Scientists and bioethicists are beginning to take life-extension seriously.[1] Callahan's view is not unusual; the consensus among bioethicists is that preventing aging looks like a bad idea. One common concern is that it would lead to severe overpopulation and resource shortages as the death rate plummets. According to the Malthusian Objection, widely available life-extension diminishes the total net welfare of the human race, even after we factor in the benefit of extended lives, and even if we assume that everyone can afford the procedure.

I will assume for the sake of argument that life-extension will bring about a Malthusian crisis (though this is questionable). However, it does not follow that a Malthusian crisis would diminish humanity's total net welfare, for the balance of benefits and burdens depends not on satisfying the preferences of the largest number of *people*, but of the largest number of *life-years*. Because those who extend their lives have more life-years than others, if at least a small minority of each generation wants extended life even under Malthusian conditions, then the way to satisfy the greatest number of life-years, and hence achieve the greatest total good, is to let them do so. According to the Life-Years Response to the Malthusian Objection, society is not justified in restricting the research, development, or availability of life-extension on the grounds that an anticipated Malthusian crisis will, on balance, diminish the total good for the human race.

II. THE MALTHUSIAN OBJECTION

Francis Collins, director of the National Human Genome Research Institute, predicts that the genes involved in aging will be "fully cataloged" by 2030, with life-extending drugs in clinical trials (Stipp, 1999). Evolutionary biologist Michael Rose suggests that we may "see human aging postponed significantly by 2050," with further progress thereafter (1999, p. 111). Not everyone agrees; Leonard Hayflick believes "the likelihood of intervening in the [aging] process is remote, if not entirely unachievable" (Hayflick, 2001, p. 23), and Jay Olshansky and Bruce Carnes share his shepticism (2001). However, life-extension is up for discussion as never before—consider the subtitle of the 2003 Congress of the International Association of Biomedical Gerontology: "Reasons Why Genuine Control of Aging May Be Foreseeable."

Perhaps the most important reason for optimism about life-extension is the discovery that we would age more rapidly than we do but for the fact that our cells contain natural defenses against the molecular and cellular-level events which seem to account for much or most of aging, such as oxidation, and contain processes which repair the damage caused by such events. These defenses and processes use a lot of metabolic energy, and

according to the currently favored "disposable soma" evolutionary theory of aging, natural selection has given us defenses and repair processes just good enough to enable humans to live about as long as we would tend to live under prehistoric conditions before predators or resource shortages killed us off (Kirkwood, 1999, pp. 63–80). On this theory, better defenses and repair processes waste energy that can otherwise be spent on reproduction, fleeing, feeding, and fighting.

Some reputable scientists have proposed ways to slow or halt aging by improving our natural defenses and repair processes. Steven Austad, for example, has suggested reengineering our genes to produce more antioxidants to combat those aspects of aging traceable to oxidative stress (Austad, 1997, pp. 219–221), and William Clark speculates that gene therapy might enhance the cell's natural means of repairing molecular and cellular damage associated with aging (Clark, 2002, p. 217). If we can slow the processes of aging, perhaps we can slow them to a halt. Of course there is more to aging than oxidative stress and other damage caused by metabolizing oxygen and glucose, but that has not extinguished the growing scientific interest in life-extension.

Aubrey de Grey, for example, has even proposed *reversing* aging through several separate therapies, including giving cells extra enzymes to completely break down damaging material which otherwise gets stored in the cell's lysosomes indefinitely, and eliminating senescent cells before they can become toxic to surrounding cells (2003). In light of all this, it is not surprising that the editors of a recent issue of *Science* devoted to life-extension believe it is time to start discussing life-extension ethics (Martin, LaMarco, Strauss, & Kelner, 2003, pp. 1339, 1341).

Many ethicists worry that a treatment for aging will cause a Malthusian disaster.[2] Peter Singer, for example, asks us to "imagine that we develop and release [a] drug which will slow aging…. since people are living twice as long, there will soon be more people than the world can support" (Singer, 1991, pp. 138–139). Walter Glannon agrees: "[I]f everyone were to live much longer than they actually do, and the availability of resources did not increase, then more people competing for the same amount of resources over an extended period of time likely would lower the overall quality of life for all people" (Glannon, 2002b, p. 274).[3] Leon Kass (2001, p. 19), and Daniel Kevles (1999) share this concern.

There is reason to worry. According to the most recent forecast of the United Nations Population Division, if fertility levels continue to decline as anticipated, the world's population will grow from 6.3 billion today to 8.9 billion by 2050, and begin to decline sometime thereafter. If, however, fertility levels stay constant, the world's population will grow to 12.8 billion by 2050—a near doubling (United Nations Population Division, 2003).

Life-extension seems likely to push population trends up, but this is unclear; demographer Jay Olshansky says that if everyone ceased aging

tomorrow and fertility trends continued, the world's population would increase to approximately 13 billion by 2100 (Bailey, 2002). However, fertility trends can change. People who live a very long time may become parents every few decades, or find it easier to have children than they do now. Moreover, the poor may so resent the new Methuselahs that some resort to random violence, terrorism, and war, and floods of refugees may seek life in rich countries so their children, at least, can get life-extension.

However, dramatic life-extension is not likely in the near future, and Malthusian consequences are even more distant. Why worry now? One answer is that research funding is threatened by such concerns. Pathologist Richard Miller has already encountered this objection:

> No one who speaks in public about longevity research goes very far before encountering the widespread belief that research on extending the life span is unethical, because it will create a world with too many old people and not enough room for young folks. (Miller, 2002, p. 170)

Judith Campisi, of the Berkeley National Laboratory, says that after a recent public lecture on aging, "a number of people came up to me and said: 'How dare you do this research? The earth is already being raped by too many people, there is so much garbage, so much pollution.' I was really quite taken aback." (Kolata, 1999, p. F2). Our question, then, is this: Should society inhibit or slow the research and development of life-extension out of concern that widely-available life-extension will cause more harm than good?

III. TEMPORIZING

The consequences of life-extension are not yet clear. What I call "Temporizing" is the social policy of delaying life-extension research until we have better information about whether life-extension is possible, whether it will be widely-available, how long it will extend our lives, its effect on population trends and the environment, and so on. Temporizing is based on the "precautionary principle":

> Where an activity raises threats of harm to the environment or human health, precautionary measures should be taken even if some cause and effect relationships are not fully established scientifically.

> In this context the proponent of an activity, rather than the public should bear the burden of proof (Ashford et al., 1998).

Temporizing buys time until we have better information and can select one of three long-term social policies:

Prohibition: Deny everyone access to life-extension
Forced Choice: Allow people access to life-extension only if they refrain from procreation
Free Choice: Let everyone have access to life-extension, regardless of how many children they have

Proponents of Temporizing must assume that widely-available life-extension poses greater risk of harm than Temporizing. However, the precautionary principle is "often invoked in circumstances in which it is far from clear in which direction (if any) caution lies" (Harris & Holm, 2002, p. 365). I will refute the assumption behind Temporizing not by marshalling facts, but by showing that, even if a widely-available treatment would cause Malthusian consequences, denying widespread access to it risks greater harm. To show this, I grant three factual assumptions which undermine my position:

1. The treatment will be cheap enough to be available to most people in the world.
2. The treatment will have Malthusian consequences: To an extent much greater than would otherwise occur, population will increase, resources will be seriously strained, and social strife and violence will increase substantially.
3. All four social policies are practicable.

The first assumption is too strong; in a world where many cannot afford dentistry, many will not afford life-extension. A more modest assumption is that the world's middle class and wealthy will be able to afford it.[4] However, even that degree of availability will affect population density, and incomes are increasing in parts of the third world (consider China). The second assumption might be too strong as well; it is possible that population growth trends will continue to decline, or that we will somehow finesse the problem with more efficient use of space and resources. As for the third assumption, perhaps no policies other than Free Choice and Temporizing (in the form of denying funding to research on life-extension) are truly practicable. However, I make these assumptions for the sake of argument, for if the Malthusian Objection can be refuted even on the bleakest assumptions, there is no reason to Temporize while waiting for better information about how bleak things may become.

I will not invoke a right to life for would-be Methuselahs, or argue that we may not maximize the good by killing the innocent. Such responses are promising, but they are claims that denying life-extension to people is *unjust*, while the Malthusian Objection concerns *net overall harm* to the human race. I respond to the Malthusian Objection on its own level, by questioning whether life-extension will cause more harm than good to the

human race in the event that Malthusian consequences happen. Although I discuss total benefit or good, my approach is not utilitarian, for I do not reject deontic constraints—I simply do not discuss them in this article.

Neither will I discuss the welfare of the nonhuman part of the ecosystem, whether of other species or of the ecosystem as a whole. Admittedly, a Malthusian crisis will affect every living thing on Earth eventually, and those harms and benefits are tremendously important for life-extension ethics. My argument will show that the total benefits of widely available life-extension almost certainly outweigh the total harms for *humans*, but I do not claim that this is true for the rest of the ecosystem. Measuring and comparing the welfare of other species to that of humans is a very complex philosophical task, and to be candid, I do not have a view on this issue. Indeed, even determining the proper subject of benefits and harms—does it include the entire ecosystem?--is more than I can settle in this article.

However, I am not trying to establish that widely available life-extension is, on balance, a good thing. My claim is much more restricted: I claim that it is not morally impermissible on the ground that the total harms outweigh the total benefits for human beings. Deontic considerations and the welfare of the rest of the ecosystem, as well as other concerns, may support strong objections to making life-extension widely available, but those issues lie beyond the scope of this article. One thing at a time.

IV. PROHIBITION

What if *everyone* wanted to extend their lives and suffer the Malthusian consequences? Surely it would be wrong to deny it when everyone wants it, but why? Perhaps those who know what they are getting into, and who choose to undergo the treatment and live for centuries into a Malthusian future, are better off doing so. This seems to follow from an "informed desire" theory of personal welfare. Sidgwick's statement is classic:

> [A] man's good on the whole is what he would now desire and seek on the whole if all the consequences of all the different lines of conduct open to him were accurately seen and adequately realized in imagination at the present point in time. (Sidgwick, 1907, pp. 111–112)

On the informed desire view, if you are suitably informed about the nature of extended life in a Malthusian world and you prefer this, then that life promotes your welfare. Moreover, this is additive; all else being equal, if one year of a given life is beneficial to you, then more years are more beneficial, and the longer your preferred life, the greater the total benefit of that life. If, however, one prefers not to have that year of life, then that year is burdensome, and the greater the total years, the greater the total burden.

Therefore, if *all* competent adults were suitably informed about the nature of an extended life under Malthusian conditions, and they all preferred to extend their lives into a Malthusian future, then the human race would enjoy greater overall benefit if life-extension were available, even at the cost of Malthusian consequences, than it would enjoy if life-extension were not available and Malthusian consequences were avoided.

There are other theories of personal welfare; Derek Parfit identifies three general types:

> On *Hedonistic Theories*, what would be best for someone is what would make his life happiest. On *Desire-Fulfillment Theories*, what would be best for someone is what, throughout his life, would best fulfill his desires. On *Objective List Theories*, certain things are good or bad for us, whether or not we want to have the good things, or to avoid the bad things. (Parfit, 1984, p. 493)

Desire-fulfillment theories correspond to the informed desire theory discussed above. Hedonistic theories can be specified in terms of pleasure and pain as well as happiness and unhappiness. According to objective list theories, a person's welfare depends on the extent to which that life contains objectively good things and does not contain objectively bad things. Objectively good things might include "moral goodness, rational activity, the development of one's abilities, having children and being a good parent, knowledge, and the awareness of true beauty," while "[t]he bad things might include being betrayed, manipulated, slandered, deceived, being deprived of liberty or dignity, and enjoying either sadistic pleasure, or aesthetic pleasure in what is in fact ugly" (Parfit, 1984, p. 499).

My argument is framed in terms of the informed desire theory of personal welfare because that theory supports the Malthusian Objection better than the other two kinds of welfare theories. On an informed desire theory, if someone has a sufficiently informed, competent preference not to live an extended life, then that person is better off without life-extension even if that extended life would contain more pleasure or happiness than pain or unhappiness, or more objectively good things than bad ones, for on such theories informed desires alone determine personal welfare.

Consider, by contrast, the objective list theory. Most lives contain more good than bad; the longer the life, the greater the total of good things it contains. Thus, on the objective list theory, it seems likely that extended life is sometimes good even for those who prefer not to have it. The same point applies to the hedonistic theory. Most lives contain more pleasure than pain, so the longer the life lasts, the more total pleasure or happiness it will contain. Thus, there is a range of cases where people are, on hedonistic or objective list theories, better off with life-extension even when they do not

want it—cases where the extended life contains more happiness or good things than otherwise.

There is also a range of cases where the reverse is true—where Malthusian conditions are so severe that, in a given year, the total pain is greater than the total pleasure, or the objectively bad things outweigh the good ones. In such cases all three theories tend to coincide, for people who anticipate a life dominated by pain or objectively bad things will not prefer to extend such lives. Thus, on all three theories, people are better off without life-extension when Malthusian conditions are bad enough—and will not want it. However, sometimes they may not want life-extension under milder Malthusian conditions either, even though each year of life contains more pleasure or good than pain or bad. The balance of pleasure over pain, for example, may not be great enough to entice them into an indefinitely long life, or they may have religious reasons for preferring a "normal" death. Therefore, unlike objective list and hedonistic theories, the informed desire theory allows for the possibility that people are better off not extending their lives even when the population density and resource shortages are mild or nonexistent.

The key point is that, on all three theories, when people *do* prefer extended living under Malthusian conditions, they are probably better off with it than without it. On two of the theories, sometimes they are better off even when they do not prefer it; however, to give the Malthusian objector everything needed to support the Objection, we will not consider those cases. For these reasons, the rest of my discussion will be couched in terms of preferences.

We have asked what should be done when everyone wants life-extension despite anticipating a Malthusian future. However, it is unlikely that all competent, informed adults will prefer life-extension if they foresee a Malthusian future. If so, how does the Malthusian Objection fare? Divide the world into two groups: The (would-be) long-lived Lees, who want life-extension, and the short-lived Seans, who do not. Assume for now that Prohibition and Free Choice are the only possible long-term policies. The Lees are willing to suffer Malthusian burdens to get Methuselan benefits. The Seans would forgo Methuselan benefits to avoid Malthusian harms. The Lees need Free Choice, which imposes collective harm on the Seans, while the Seans need Prohibition, which denies years of life to the Lees. Currently most people talk more like Seans than Lees when they discuss life-extension, so Prohibition—or at least Temporizing until a change of public sentiment—seems more popular. Because the total good is a function of satisfying people's informed preferences, satisfying the majority's preferences seems to achieve the most good. Therefore, Prohibition seems more justified than Free Choice.

However, we should not count heads in choosing a policy, for that counts *lives* when we should be counting life-*years*. Measuring total net

benefit by counting life-years rather than lives is the Life-Years Response to the Malthusian Objection. To illustrate, suppose that 17% of the world's population are Lees, and the other 83% are Seans. Let us assume that the average lifespan for those who refuse life-extension is 100 years. Out of 100 people, the 83 Seans have 8,300 life-years between them. How many life-years do the Lees have? Halting aging is not immortality; disease and accidents would still take a toll. On one estimate, if all age-related causes of death disappeared but the accident rate did not change, half the population would live to 350, and the remainder to a maximum of 600 years or so (with some living much longer) (Walford, 1983, pp. 23–24). Another estimate says the average age lifespan would be 1,200 years (Austad, 1997, p. 10). Let us take the higher end of the shorter average, and assume the accident rate can be reduced enough for an average lifespan of 600 years. However, we should not count the first 100 years of the Lees' lives, for they will have that 100 even under Prohibition. Thus, the Lees have 500 extra life-years apiece, for a total of 8,500 life-years—200 more life-years than the Seans.

Not only that, but under Free Choice, each Sean suffers merely 100 years of crowding, resource shortages, and civil strife, while under Prohibition, each Lee loses 500 years of potential *life*. A year of crowding, shortages, and civil strife would have to be spectacularly bad to be worse than dying a year early. (How many residents of Calcutta are driven to suicide?) Finally, we have assumed that lives can be extended to an average of 600 years, pending disease or violence. However, on the longer estimate of 1,200 years, the Lees' total life-years exceed the Seans' with only 9 Lees: 1,100 life-years apiece (again, not counting the first 100 years) totals 9,900 life-years, compared to 9,100 life-years for 91 Seans.

For comparison, suppose we can either give 9 people a higher quality of life for 5 years apiece, or one 25-year old another 50 years to live. Maximizing total welfare (again, leaving aside considerations of rights and justice) requires benefiting number 10 even though he is outnumbered 9 to 1, partly because he has more life-years at stake, and partly because losing a year of life is, within limits, worse than suffering diminished *quality of life* for a year. A widely available treatment for aging presents this situation on a vast scale, for the treatment gives many more life-years to the Methuselahs at the expense of those who prefer a certain quality of life for fewer years. The greatest benefit, *ceteris paribus*, is a function of the number of life-years, not the number of people. It seems safe to expect at least 17 out of every 100 people to be a Lee. If the percentage of Lees is higher, then Prohibition is still more unjustified, even though the Malthusian consequences are worse. My arithmetic is speculative, of course, but it makes the key point: It takes only a minority of the population to render Prohibition unjustified by concerns about collective harm to humans.

Talk of life-years suggests the controversial *quality-adjusted* life year, or QALY, which measures the degree to which a condition reduces the

value of a year of life. A year of good health is worth one QALY. If you suffer from severe arthritis and you are indifferent between 10 years with arthritis and 9 years without it, then a year of living with that particular arthritis is worth 9 QALYs to you.

The controversy concerns not whether QALYs measure what they purport to, but whether society should allocate health care resources so as to maximize QALYs. For example, because young people have longer life expectancies than old people, allocating health care resources to the ailments of the young seems likely to produce more QALYs than allocating them to the old. However, this result has been condemned as "ageist" and morally counterintuitive. Maximizing QALYs may also (depending on the facts) call for treating those with inexpensive ailments over those with expensive ailments, providing life enhancement over saving lives, favoring patients whose quality of life (absent their ailment) is good over patients whose quality of life will always be poorer (such as paraplegics), or treating a larger number of serious problems over a smaller number of more serious problems (Daniels, 1993, pp. 228–230; Harris, 1987, pp. 118–120; Nord, 1993, pp. 39–41).

These distributions strike many people as unjust. As with similar objections to other consequentialist approaches, one response is that we should seek to maximize QALYs, but subject to nonconsequentialist constraints of justice or rights. John Harris, among others, has proposed strong nonconsequentialist constraints on QALY-maximization (Harris, 1999, p. 392), but left room for maximizing QALYs when it comes to selecting a treatment for a particular patient or a particular condition (Harris, 1987, p. 118).[5] Weaker nonconsequentialist constraints would, presumably, allow more extensive QALY maximizing. For the record, I believe some nonconsequentialist constraints are called for.

Whether or not the justice concerns about QALYs can be overcome, the life-years tradeoffs are importantly different from the QALY tradeoffs. I contend that, so far as net welfare is concerned, more welfare is achieved by Free Choice than by Prohibition. This implies a distribution under which more people (the Seans) will have a lower quality of life than they wish in order to provide more life years for fewer people (the Lees); call this the Free Choice tradeoff. The tradeoff imposed by Prohibition is just the reverse: A greater quality of life for more people (the Seans) at the expense of more years of life for a smaller group who wants it (the Lees). The Prohibition tradeoff is very similar to two of the QALY tradeoffs that many have rejected: Providing life enhancement for many over saving lives for a few, and treating a large number of lesser ailments at the expense of not treating a smaller number of more serious cases. If the problems with QALYs are relevant here at all, they seem to count against Prohibition and in favor of Free Choice.

And the Free Choice tradeoff differs from the various QALY tradeoffs in other important ways. It does not deny life-years to the Seans, nor even

access to life-extension; it denies them a certain quality of life—though no less than the quality of life the Lees will enjoy. It is not an allocation of health care; it is an allocation of quality of life and years of life. Finally, it does not deny anyone an equal opportunity to benefit from society's health care resources—both access to life-extension and access to health care generally are the same for Seans and Lees alike. Thus, aside from whether objections to QALY-maximizing can be overcome with nonconsequentialist constraints, the Free Choice tradeoff seems to avoid the problems with QALYs.

Will there come a time when the Malthusian conditions reach a level of such crisis that people are better off not extending their lives? Perhaps so; if *they* see it that way, they will stop choosing life-extension. However, as long as they believe they will enjoy more welfare by extending their lives in a Malthusian world than by living only a century in that world, then Malthusian harms do not justify society in stopping them.

Of course, a year of life under Malthusian conditions is probably not as valuable or beneficial as a year of life lived under less crowded conditions, all else being equal—on any theory of personal welfare. Therefore, a Lee's 500 extra years cannot be matched, year by year, against a Sean's 100 uncrowded years, as if either kind of year is equally valuable. However, it does not follow that a Lee loses less by missing out on a year of Malthusian life than the Sean loses by suffering a year of Malthusian living. In fact, the opposite is likely—the amount of harm suffered by a Sean who endures a year of Malthusian crowding is less than the harm suffered by a Lee who misses out on a year of Malthusian living, at least so long as the Malthusian conditions are not so bad that people are better off dead than alive. The Lees lose far more per year under Prohibition than the Seans lose per year under Free Choice. Therefore, the percentage of Lees needed to defeat the Malthusian Objection is much less than the 17% figure suggested by our arithmetical assumptions. In light of all this, it is extremely probable that there will be enough Lees to refute the Malthusian Objection. For this reason, the burden of argument falls on those who would Temporize or Prohibit life-extension, not on those who favor Free Choice.[6]

One might object to counting the Lees' 500 extra life-years on the grounds that, in measuring benefits and burdens, we should count satisfaction and frustration of actual preferences only, and not potential preferences. For example, if society adopts Prohibition and the Lees live only 100 years, then the Lees are frustrated for only 100 years, not for the 500 years they would get under Free Choice.[7] However, the proper comparison is not between the Seans and Lees, but between the same population of Seans and Lees under the two policies. Prohibition will satisfy 8,300 Sean-life-years and frustrate 1,700 Lee-life-years. Free Choice will frustrate 8,300 Sean-life-years and satisfy 8,500 Lee-life-years.[8] (Actually, because this objection counts the first 100 years of a Lee's life as frustrated under Prohi-

bition, then, for purposes of responding to this objection, consistency requires that we count that first 100 years as satisfied under Free Choice, thus giving the Lees a total of 10,200 satisfied life-years.) Therefore, even if we count actual preferences only, Free Choice produces more total preference-satisfaction.

The objector can respond to this move by asking whether we are willing to count *all* potential preferences.[9] For example, many people argue that total utilitarianism implies that we should create as many people as possible in order to maximize the total amount of desirable experiences. This, of course, might have Malthusian consequences, for a very large population with a low quality of life might have a greater total amount of utility than a much smaller population with a very high quality of life.[10] One popular answer to this problem is to limit preference-satisfaction to the preferences of actual people, and exclude potential people. We can reply in a similar way, by noting that Free Choice does not involve creating additional people, but rather creating additional life-years for existing people. Of course, if the Malthusian consequences of total utilitarianism are a reason to reject total utilitarianism, then one can argue that Malthusian consequences are a reason to reject Free Choice. However, it is one thing to avoid Malthusian consequences by refraining from creating people; doing so does not harm anyone. It is quite another to avoid Malthusian consequences by denying life-years to existing people; doing so does harm someone, and the harm is measured in centuries.[11]

Before we compare Free Choice and Forced Choice, let us consider future generations. It is one thing to make your choice in the 2lst century, but quite another to be born in, say, the 24th century, after people have been taking the treatment for 300 years and the world is much more crowded and depleted. A 300-year-old Methuselah chose to live in that world—even helped to create it. The Seans of the 21st century refused the treatment, and are not around to complain. Methuselah's *children* are another matter—they never had a choice about being born into a Malthusian world. Does the creation of such children make Free Choice an unjustified policy?

Every generation divides into Lees and Seans. A Lee born into a Malthusian world where life-extension has been widely available for a long time implicitly accepts that world by making the same kind of choice that created that world. Indeed, she helps make it worse. By making this choice, she cannot complain that others before her made the same choice. More important, on an informed desire account of welfare, she is better off with an extended life in a Malthusian world than she would be with a non-extended life in that world. Those in every generation who refuse the treatment are Seans; they do not perpetuate the Malthusian world by undergoing the treatment, they have no choice about living in that world, and they are worse off as a result. Again, however, so long as there are enough Lees in a

generation that their life-years outnumber the life-years of the Seans in that generation, Free Choice will produce more total good for that generation than Prohibition would. If it seems wrong to impose an unwanted social policy upon future Seans, remember that the alternative imposes an unwanted social policy upon the Lees. So far as *total net good for humans* is concerned, the most justified social policy is the one that satisfies preferences over the greatest number of life-years, all else being equal.

V. FORCED CHOICE

Free Choice is justified over Prohibition. However, there is also Forced Choice: No life-extension unless you refrain from procreating, or at least limit your number of children. Gregory Kavka suggests that "society, to protect itself, will offer individuals a harsh choice between

1. extending their own life span, at the price of surrendering the right to reproduce, or
2. retaining the right to reproduce without having an extended life span" (Kavka, 1994, p. 162). Glannon (2001, p. 145) and Singer (1991, pp. 138–139) have also suggested this.[12]

I discussed Free Choice and Prohibition as a tradeoff between two things: Life-extension and Malthusian harm. Choosing between Free Choice and Forced Choice involves tradeoffs between three goods or sets of interests:

1. life-extension,
2. reproduction, and
3. *lebensraum.*

Lebensraum is German for "living room"; Hitler wanted *lebensraum* for Germany at the expense of other nations. The Seans want *spatial* room at the expense of the Lees' *temporal* room, and the Lees want the reverse. Free Choice gives free rein to life-extension and reproduction, but impairs spatial *lebensraum*. Forced Choice allows life-extension or reproduction, but not both, compromises spatial *lebensraum* to less than the Seans want, and frustrates the parental desires of some Lees.

Now imagine 100 people contemplating Free Choice and Forced Choice. Although there are two long-term policies, each person has three personal alternatives. First, one can prefer Free Choice for everyone (and have children or not as one pleases). Second, one can prefer Forced Choice, intending to undergo the treatment and forgo parenthood ("Forced Choice/ Treatment"). Third, one can prefer Forced Choice, intending to have children and forgo the treatment ("Forced Choice/Reproduce").

When selecting between Free Choice and Prohibition, the Lees collectively have more life-years so long as they constitute at least 17% of the population (again, a speculative figure, and probably too high), for each of them has 500 extra life-years at stake. When selecting between Free Choice and Forced Choice, the Free Choicers (some Lees may prefer Forced Choice/Treatment) can still assemble the largest collection of life-years without a majority of the population, but this time they need a larger number of persons than the Forced Choice/Treatment group contains. How many they need depends on how many of those who prefer Forced Choice also intend to undergo the treatment. Suppose the 100 preferences tally this way:

Free Choice	31×500 years = 15,500 life-years
Forced Choice/Treatment	19×500 years = 9,500 life-years
Forced Choice/Reproduce	50×100 years = 5,000 life-years

Here the Free Choicers total less than a third of the population, but because most Forced Choicers are having children instead of undergoing the treatment, the Free Choicers still have a majority of life-years in that population. Obviously, the Free Choicers have the largest number of life-years with a minority of the population on other distributions as well.

It is very plausible that at least 17% of the human race would choose life-extension at the expense of a Malthusian future, if those were the only two choices. But how can we know what percentages of the human race would prefer each of the three options above, without taking numerous opinion polls? There are two reasons why Free Choicers would probably have more life-years than the other two groups put together. First, it seems likely that most of those who choose life-extension will also prefer Free Choice, rather than Forced Choice/Treatment. Most people tend to want to have children, so most of those who want life-extension will probably also want children. Parents make big sacrifices for their children, but giving up 500 years of potential life to ensure a less Malthusian world for one's children goes beyond the sacrifices most people actually make. For this reason, most people who want life-extension will probably prefer Free Choice over Forced Choice. Second, there will be some Malthusian harm even under the Forced Choice policy—just less than under Free Choice. Those willing to undergo the treatment and live into a Malthusian future evidently do not consider living in an increasingly Malthusian world a fate worse than nonexistence, therefore they probably do not consider it a fate worse than nonexistence for their children either. If they consider a Malthusian future tolerable for themselves, they probably consider it tolerable for their children as well. Granted, the Malthusian future would be less alarming under Forced Choice than under Free Choice, but only by a matter of degree, and probably not enough to dissuade those who want life-extension and children from having both. For these two reasons, it is unlikely that the Forced

Choicers would have more life-years than the Free Choicers even if the Free Choicers are far fewer than a third, for most of those who want life-extension will probably also want children, and be unwilling to give up the one to have the other. Therefore, Free Choice is more justified than Forced Choice and Prohibition.

Let us close by bringing this discussion back to Temporizing and the precautionary principle. My arguments rest on two sets of factual assumptions. The first three assumptions—that the treatment will be cheap, that it will have Malthusian consequences, and that all four social policies are practicable—all support the Malthusian objection more strongly than their alternatives. If the objection can be refuted even on these assumptions, then we need not Temporize (follow the precautionary principle) until we have better information.

However, I have also made a second set of assumptions about how long people would live with and without the treatment, and what minimum percentages of a population we can plausibly anticipate would favor Free Choice over other policies. The assumptions in this second set (call them "population assumptions") are not selected because they strongly support the Malthusian objection; they are selected because I believe they are very plausible. We could, of course, replace these population assumptions. For example, we could assume that very few people would choose Free Choice, or that the extension treatment will not extend life nearly as long. However, the fewer people who choose to extend their lives, or the less extension they get, the less the Malthusian consequences will be. If, however, we assume that more people choose extended life, or assume that the average extension is substantially more than 500 years, then although the Malthusian consequences are greater, the number of life-years held by the Lees is all that much greater than those held by the Seans. Thus, the Malthusian objection can be challenged with other population assumptions—in either direction.

Therefore, we need not wait for more information before concluding Free Choice is the most justified social policy on life-extension. Although we have far less information about all this than we will one day, on the information we *do* have—and making other assumptions which support the Malthusian objection as strongly as possible—Temporizing is unjustified by concerns about the net welfare of the human race. To put this in terms of the precautionary principle, so far as net human welfare is concerned, caution lies on the side of proceeding with the research and development of life-extension.

VI. CONCLUSION

According to the Life-Years Response to the Malthusian Objection, the most justified life-extension policy, so far as net total human welfare is concerned, is the one that burdens the smallest number of life-years. Again, I am

responding only to objections based on total human welfare; objections based on justice, rights, or the welfare of other species are beyond the scope of this article. The best social response to the Malthusian Objection to life-extension is (*contra* Callahan) to let people decide individually what is in their best interest – no matter how the facts turn out.

NOTES

1. Some of those implications have been discussed in an exchange of articles in a recent issue of this journal (Glannon, 2002a; Harris & Holm, 2002).

2. This is by no means the only ethical issue raised by life-extension; other issues include whether one will benefit from living indefinitely in a perpetually youthful condition, and about whether only the well-off could afford life-extension.

3. Although generally optimistic about whether a Malthusian threat will emerge, John Harris notes that some fear "a world in which increasing numbers of people live indefinitely, and in which future children have to compete with previous generations for jobs, space, and everything else" (Harris, 2000, p. 59).

4. According to the World Bank's Research Department, in 1993 22% of the world's population received $3,470 or more per year measured by purchasing power parity; the authors of this analysis consider this figure to represent income levels of the middle class and above (Milanovic & Yitzhaki, 2001).

5. The nonconsequentialist principle Harris defended in 1999 was not mentioned in his 1987 article, but it seems safe to suppose that he still accepts QALYs for the limited purpose mentioned here.

6. The fewer the Lees, the less the Malthusian burdens the Seans may complain about. Because my discussion is restricted to considering total benefits and burdens, and excludes consideration of rights, I will merely note that, if there is a right to life which includes even extended life, then the fact that the Seans have so many more life-years at stake might easily be overcome by a combination of the Lee's right to life and the fact that a very small percentage of Lees produces only a mild Malthusian burden.

7. I am indebted to Nick Bostrom for pointing out this objection.

8. I leave aside, and take no position on the question of whether maximizing the good means maximizing the number of people.

9. One reason not to count all potential preferences is that, if we do, the welfare-maximizing option might be to have preferences that are very easily satisfied. This might require avoiding higher education, or using drugs, or otherwise dodging the higher pleasures in favor of becoming Mill's satisfied pig. My answer to this is that the Lees' future preferences are probably similar to their current preferences. More strongly, they are the same preferences over a longer stretch of time. The problem about modifying one's preferences is serious, but no more a problem for Free Choice than for other scenarios.

10. Aside from the fact that my approach in this article does not exclude the possibility of deontic constraints, I take no position on whether this objection scores against total utilitarianism, or whether the restriction to actual persons solves the problem. I mention this objection simply to make a comparative point about life-extension and potential preferences.

11. There are perennial questions about how, if there is no afterlife, death can be harmful to the one who dies, for the subject of the harm does not exist. There are also perennial answers to this question; given the paucity of stoic attitudes toward death, I will assume that most of us believe that one or more of those answers is right.

12. Again, although John Harris is optimistic that we can avoid a Malthusian crisis, he has mentioned something like Forced Choice as a society option (Harris, 2000, p. 59).

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