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XLIII: Intergenerational Distributive Justice

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I. Intergenerational Justice in Theory and Practice

Our present actions and institutions can influence the lives of people who will live in the distant future. These people's lives may not overlap our own, and they have no way to reward us for benefits we may bestow or to punish us for harms we may inflict upon them. But because we can sometimes gain advantages for ourselves at cost to future people, the relationship between people who live at different times and in different generations raises questions of justice: is it just to gain advantages for ourselves in the present, if we know that our actions impose serious risk of harm for people who don't yet exist? Can we make sense of the idea that present actions might, under some circumstances, violate the rights of people who live in the future? These concerns are not hypothetical: many people worry that our present use of energy and environmental resources may harm our descendants or leave them impoverished. When our activities benefit us as members of the present generation but also impose costs and risks on people who will live in the distant future, it is appropriate to ask whether we may justly discount their interests and favor our own. This paper will not articulate a theory of intergenerational distributive justice. Instead, it will examine alternative approaches one might take and tools one might use to develop such a theory.

II. Rights, Community Standards, and Intergenerational Saving

Theorists frequently classify theories of justice as *Libertarian, Liberal,* or *Communitarian. Libertarians* often frame the problem in terms of underlying rights to liberty and property. Some libertarians hold that the only obligations that can legitimately be enforced are negative obligations, and obligations people freely accept when making contracts or agreements with others. But since future persons do not exist, they cannot have any negative or contractual rights. Such assumptions quickly lead some to conclude that libertarian justice cannot extend across generations. (Beckerman & Pasek 2001, Beckerman 2003) Of course, acceptance of this view does not necessarily imply lack of concern for future generations, nor does it imply that they will be badly off. But some advocates argue that the market institutions libertarians favor are most likely to provide benefits for future generations. (Gauthier 1987, Beckerman 2004, Cowen 2007).

Communitarians hold that norms of justice are local, and apply within the communities in which they arise. But distant future people do not seem to be members of our present community. Consequently, some communitarians argue that norms of justice do not apply to future generations. In this spirit, de-Shalit (1995) argues that our obligations to future people are obligations of *humanity* but not of justice. Those who find the communitarian ideal appealing but who are unable to accept this implication might instead consider the sense in which future people—even distant future –people, may be part of our community even though they do not presently exist. In this spirit, Burke writes that the social 'ends' of society cannot be obtained or created in a single generation, and that society should therefore be considered a contractual partnership "not only between those who are living, but between those who are living, those who are dead and those who are to be born." (Burke 1790/2001 paragraph 165)

There is no reason in principle why either a libertarian or a communitarian account of justice could not include provisions to protect distant future generations. In practice, however, representative libertarian and communitarian views have not usually been developed with distant future generations in mind.

Liberal theories of justice place a high value on individual rights and liberties, but also include a role for *distributive* justice, specifying the way in which the burdens and benefits of social cooperation or interaction should be carried by different persons. Liberal theorists have often framed the problem of intergenerational justice as a problem of *saving* or *investment* in the future. For example, John Rawls (1971, 1993, 1999) argues that the central question for a theory of intergenerational justice is to select a just rate of saving that specifies what resources present generations should preserve for the future. It is easy to see why this might seem an appropriate strategy: future generations will have at their disposal whatever we leave for them to use, so our obligations to them might reasonably be framed as a duty concerning what we leave behind. Just treatment of future generations may require that we divide the world's resources into fair intergenerational shares, and avoid using more than our share. But this strategy faces difficulties: We don't know how many people there will ever be, so it is difficult to divide the world into shares. Worse, the total number of present and future people is probably very large, and if we were to try to allocate each present and future person a fair share of the present wealth of the world, each share might be infinitesimal. Fortunately, many resources grow or recover over time, and others are intergenerationally durable, unlikely to be used up as they are used. Perhaps intergenerational distributive justice won't involve the indefinite subdivision of a finite-sized pie, but instead the non-destructive employment of productive resources that can be used by one generation and then passed on to the next.

III. Material Sustainability: Modeling Resource Use Over Time

The concept of intergenerational justice is often identified with the thought that environmental resources should be used *sustainably* so that we accommodate the needs of future generations. (Barry 1989, Solow 1993, 1994) By 'sustainable use,' people often mean non-depletionary use: using a portion of the resource and maintaining (or investing) the balance, so that subsequent generations will have an undiminished supply. One of the simplest and clearest models of non-depletionary use is articulated in the work of Partha Dasgupta (1974a, 1974b).

Dasgupta asks that we consider a community that starts with a finite set amount of some essential and enduringly valuable renewable resource K, the quantity of which at time t is K_t. Each generation faces a choice about how much to consume now, and the choice made will determine how much will be available for subsequent generations. Since renewable resources grow or recover after use, we can let α be the rate at which saved resources grow over time from one period to the next. Suppose the first generation to be represented in our model possesses a finite quantity K_t of resource K at time t, and consumes C_t. Then the amount of the resource available for the subsequent period at time t+1 will be:

$$K_{t+1} = \alpha(K_t - C_t) \qquad (1)$$

That is, people in the first period start with K_t but consume C_t leaving the remainder, $(K_t - C_t)$. We can represent this value, $(K_t - C_t)$, as the rate of investment, since it will grow from one period to the next at a rate of α, leaving $\alpha(K_t - C_t)$ available in period t+1. In the case of overstressed environmental resources, investment of this kind might involve foregone

consumption to let natural stocks recover from present use. For example, we might lower the rate of present fishing harvest to allow fish stocks naturally to grow back, in which case α represents the rate at which these stocks recover.

While economic models typically assume that resources grow (or recover) over time, this will not be true for all resources. If $\alpha = 1$, then the amount of resource left over for the next generation will diminish at the rate that it is consumed by earlier generations. In that case, $K_{t+1} = (K_t - Ct)$ and the amount of resource available will continually decrease over time. If $\alpha < 1$ then the resource decays over time and the first generations may need to consume it quickly before it spoils. In the worst case, if $\alpha = 0$, then there is not even time to consume the resource before it spoils. But as long as $\alpha > 1$, then whatever is saved by one generation grows for the benefit of the following generation. We might suppose that each generation would make a decision about how much to consume and how much to save based on the value of α, the value they place on present resource consumption, and the value they place on consumption by future generations.

Over time and across generations, saving and consumption can be represented with a simple accumulation equation:

$$K_{t+1} = \alpha(K_t - C_t)$$

$$K_t \geq C_t \geq 0 \qquad \text{for } t = 0,1,2,3,... \qquad (2)$$

$$K_0 \text{ given.}$$

After the first period, the choice for subsequent periods will be constrained within the limit presented by the saving done previously. This allows us to refer to intertemporal allocation or consumption sequences, so that the sequence $(C_t) = (C_0, C_1, C_1, \ldots C_n)$ will include the

consumption allocation for each period. The set of *feasible* intertemporal allocations is the set of sequences C_t that satisfy equation (2) above. If people invest more in earlier periods, there will be more to consume later. If they invest less, then the future will be poorer.

Is there a minimum saving rate required by justice, such that saving less would violate obligations to future people? If people in the earlier generations gratuitously consume all of the available resource, then people in later generations will be left with nothing at all. On the other hand, if people save too much they might needlessly impoverish themselves for the sake of their rich descendents. On this model, a theory of intergenerational justice would, among other things, provide a principled method for choosing an appropriate rate of saving.

It might be easier to identify undesirable saving plans than to identify a unique optimal plan. Even if there *is* no unique optimum, it may be possible to rule out the worst alternatives. In this spirit, Dasgupta suggests that we should eliminate those schemes that tend toward zero consumption, and that it would "not be very just" for early generations to leave nothing for later ones.(Dasgupta 1974a, p. 415) He suggests that justice requires that intergenerational consumption and saving should, in this sense, be at least be sustainable over time. But the possibility of sustainable production and consumption will obviously depend on the sizes of α and K_t. Suppose we define "sustainability" as the condition that $K_{t+1} = K_t$ for all times t. This means that the amount of K available to later generations is no less than the amount available to earlier generations. In order to obtain this condition, we must have $K_t = \alpha(K_t - C_t)$. This gives us a condition on C that will insure nondecreasing resource availability over time and across generations:

$$C_t \leq (K_t - K_t/\alpha) \qquad (3)$$

Where resources fit the assumptions of the model, savings plans that consistently consume faster than the sustainable rate will tend toward zero consumption in the long run. For this reason, it has seemed to some that the sustainable consumption rate is a minimal requirement of intergenerational justice.

However, we should not be too quick to identify a sustainability requirement as a necessary condition for intergenerational justice. Dasgupta's model focuses on resources that meet people's needs, but non-depletionary use may be neither necessary nor sufficient for meeting future needs. In the case of nonrenewable resources like oil and coal, sustainable use would mean no use at all. In such cases we might consider tradeoffs among different kinds of resources. For example, when we use non-renewable resources like oil (where $\alpha = 1$) we can be sure the total quantity of these resources that will be available to future generations will be less. On the other hand, our present consumption may support the development of substitute technologies that might take the place of oil. What is a 'resource' for one generation may no longer be needed by later generations, if new technologies provide an alternative. We may know little about future needs and preferences. Future people may not need or value the resources we save for them. While it would be unreasonable to assume that proximate future people will be so different from us that they may not need a breathable atmosphere or other environmental basics, the things we might choose to save for future generations could reflect a systematic misunderstanding of their needs and values.

There are additional reasons to question the simple view of intergenerational justice as nondepletionary resource use: merely sustainable consumption may, in some circumstances, be *insufficient* to meet basic needs if population size is increasing over time. And sustainability

might not be *necessary* for meeting human needs if population size were to diminish. If the goal of sustainable resource use is to insure that future generations are as well-off as present generations (Solow 1993), it will be necessary to take into account expected rates of population growth, as well as our uncertainty about future needs. Because of this, an account of non-depletionary resource use will not be a full theory of intergenerational justice, even if it may be part of such a theory. (Wolf 2010)

IV. The Model of Preferences and Needs: Intergenerational Social Choice

An alternative strategy to represent intergenerational choice focuses on preferences and needs. Many theorists have modeled intergenerational distribution by considering the preferences of a hypothetical chooser who is ignorant of the position she or he will occupy in society. This strategy has been suggested and developed by a number of different writers, including Harsanyi (1955), Vickrey (1960), Rawls (1971), Arrow (1973), Mueller (1974) and Dasgupta and Heal (1979). Ignorance of one's own identity or position in society is understood as a way to extend equal consideration to different members of society. While there are difficulties in modeling intergenerational social choice in this way, it is useful to consider how far this notion can be extended to a theory of intergenerational justice.

Consider a simple case involving two generations, or to simplify, two people a and b who live at different times and whose consumption is represented by Ca and Cb respectively. The impartial chooser is assigned the task to select a distributional scheme that will determine the distribution of goods between a and b. In the two-person-two-generation case, the choice will be an ordered pair <Ca,Cb> where Ca is the amount of resource available for consumption in period a, and Cb is the amount available in period b. We can specify the range of feasible distributions

by graphing them on a coordinate system, where Ca and Cb are the two dimensions. The range of feasible (or possible) distributional alternatives can be represented as the points that lie within a line that is concave with respect to the origin, FF, which represents the set of ordered pairs that *completely* distribute all of the available resources. FF is sometimes called a production possibility frontier (PPF).

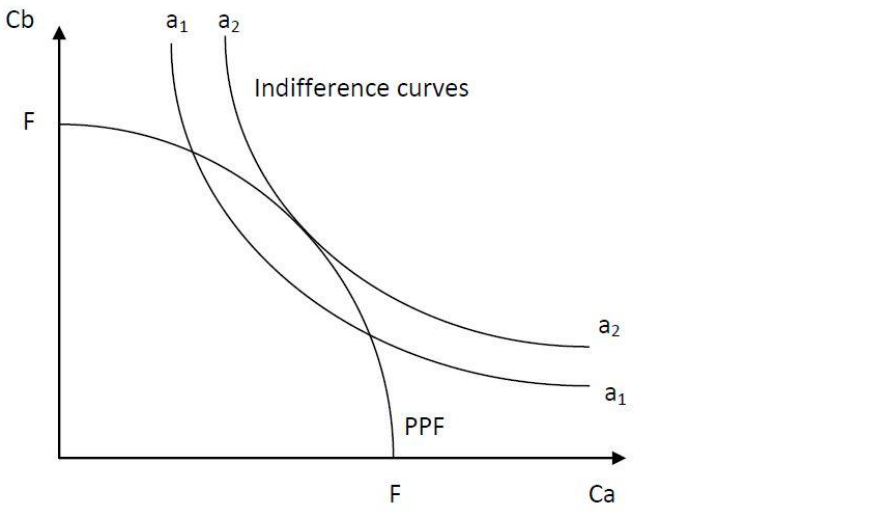

Figure 1: Two-period Production Possibility Frontier with Indifference Curves

The preferences of the impartial chooser can be represented as *indifference curves* (a_1-a_1) and (a_2-a_2) above, which provide a ranking of the feasible distributions. Feasible distributions include all of the ordered pairs that lie within the PPF. Each indifference curve is a set of points (ordered pairs) that are regarded as *equally good* (or equally bad) by the choosing agent. In this case, the indifference curves represent the preferences of an impartial chooser who does not know when she will exist, and hence does not know which period's consumption will be *her own* consumption. She will be equally concerned with both. Alternately, Ca and Cb may represent the resources available to each of two *generations*, where the impartial choose does not know to

which generation she herself belongs. The problem of intergenerational distribution, then, is reframed as a question about the shape of the indifference curves of an impartial chooser.

Dennis Mueller (1974) develops an account of intergenerational distributive justice by positing alternative possibilities for the indifference curves of an impartial chooser like the one posited in Harsany (1955) and Rawls (1971). The three diagrams in Figure 2 illustrate alternatives considered by Mueller. As in the previous diagram, the two axes represent the amount available for consumption in the two periods, and the curved line is a production possibility frontier [PPF]. Notice that the PPF is not symmetrical with respect to the 45 degree ray extending from the origin. This models the thought that saving in 'period a' (reflected in a lower value on the horizontal axis) can be expected to increase resource availability later in 'period b' (vertical axis) as resources grow over time. According to Mueller, intergenerational justice is reflected in the choice of an impartial chooser charged to consider whether she would be willing to be worse-off if she were to live in an early generation for the sake of being better-off if she were to live in a later one.

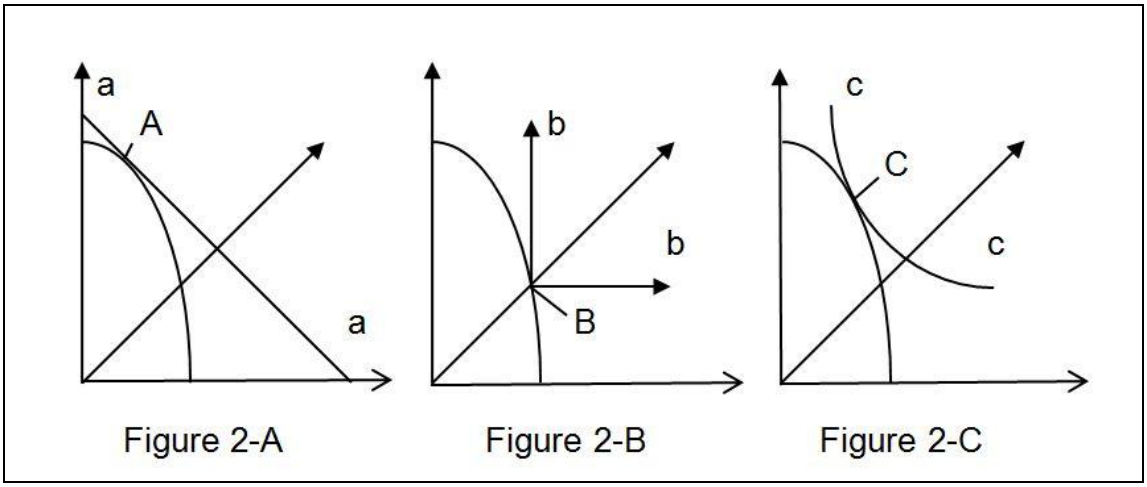

Figure 2-A Figure 2-B Figure 2-C

Figure 2-A shows an indifference curve for a risk-neutral chooser who aims to maximize total resource availability regardless of who will enjoy it when it is available. For such an individual, the indifference function a-a is a straight line which will touch the PPF at point A, quite close to the vertical axis. This point represents an intergenerational distribution that provides much more for the later period than the earlier one, while maximizing total resource availability during the two periods. Figure 2-B represents the values of a Rawlsian maximin chooser, who wishes to maximize the consumption of the worst off generation. Such an individual will have indifference curves b-b parallel to the axes, with a sharp 90 degree angle on the 45 degree ray extending from the origin. This angular indifference function will select point B where the PPF intersects the 45 degree ray. This has the effect of equalizing consumption between the two generations, but would prevent tradeoffs that would involve relatively little cost to the worse-off earlier generation and which might have provided great benefits for those who will live later. Figure 2-C illustrates the preferences of a normally risk averse chooser, interested to avoid deprivation but willing to sacrifice consumption in an earlier period when it would provide great benefits later. Indifference curves c-c pick out a point on the PPF that is between points A and B.

Mueller urges that the risk neutral choice sacrifices too much consumption in generation a, while the maximin-choice foregoes benefits for generation b that could be achieved at minimal cost to those in generation a. According to Mueller, it is quite plausible to think that an agent who is ignorant of her own identity would be risk averse--and unwilling to accept outcomes that involve too much deprivation-- but willing to trade greater consumption in the future at the cost of lesser-but-adequate consumption in the earlier period. Following Harsanyi (1955), he takes

this as an indication that such a preference structure should be a strong candidate for a theory of intergenerational justice.

V. Evaluating Intergenerational Social Choice

While the model above includes only two generations, it can be extended to include an indefinite number. But it is worthwhile to consider some of the objections that can be raised against it, as well the limitations inherent in the methodology. One concern involves the indifference curves we might impute to the impartial chooser, and social choice theory methodology involved in their use: whose indifference curves are these, and what is our real basis for choosing among the alternative possibilities? One concern is that they may simply reflect the arbitrary preferences or values of the modeler. In that case we may have no reason to regard one set of proposed indifference curves as more appropriate or as preferable from the moral point of view. Some theorists are skeptical about indifference curves that do not expressly represent the preferences of some actual person, and urge that the exercise to represent a social welfare function in this way is simply a sneaky way for social theorists to represent their own private preferences and values as if they represented the impersonal public good. (Montgomery, 1999, p. 49)

The objection is an important one, and it is crucial for social theorists guard against the temptation to represent private values as if they were public. But raising the objection is not sufficient if objectors do not take the time to evaluate the reasons given for structuring social choices. Those who defend models like those of Mueller and Rawls urge that they may avoid inappropriately attributing their private preferences to the impartial observer if they articulate good reasons that explain and justify the choices that are prescribed. The reasons themselves

must be considered and evaluated. If the reasons aren't adequate, then the model must fail, but it will not be sufficient simply to dismiss all such models as public imposition of private values.

Another common objection involves the use of "consumption" as the object to be distributed. Many have argued that the currency of distributive justice should be something other than consumption. For example, capability theorists argue that distributive justice models should focus on capabilities instead of on goods—on what people can do or be, and not on what they can consume. (Sen 2010, Nussbaum 2000, 2011) Others urge that distributive models should focus on a complex basket including various different kinds of rights and goods (Rawls 1971), or on opportunities (Arneson 1989). As a first thought concerning this objection, it is worth noting that the models employed above do not specify the value to be promoted or distributed. It would be perfectly consistent to specify that the 'production frontier' in Mueller's model might represent capability or opportunity, or whatever one takes distributive justice to distribute. There need not be any special association with the production or consumption of physical commodities.

On the other hand, any plausible theory of justice must take seriously the availability of at least some key resources. As Sen (2010) and Nussbaum (2011) have insisted, capabilities cannot effectively be exercised if people are destitute or hungry, or if they lack access to basic physical necessities. Thus while a capabilities approach will not focus on goods as having primary significance, they must be attentive to the distribution of necessary goods that make possible the exercise of fundamental capacities. The significance of fundamental needs can easily be incorporated into a social choice model: for example, one might suppose that the impartial chooser would employ a maximin strategy up to the point where basic needs have been met, and that from that point on intergenerational tradeoffs would be more acceptable.

But even if Mueller's social choice model can be defended against these charges, there is another that may be more damaging: the methodology employed may precipitously *rule out* certain kinds of theories of intergenerational distributive justice. Some otherwise reasonable social preference orderings cannot be neatly reflected as smooth indifference curves covering the space in question. To show this, it is sufficient to identify one plausible candidate theory of intergenerational distribution that can *not* be represented in such a model.

One such model is a *basic needs* model, which places priority on the goal to minimize the number of people who suffer deprivation with respect to basic needs. Suppose there is some minimal level of provision P, such that anyone who has less than P will be severely deprived. We might suppose that an impartial chooser would be more risk averse about alternatives that involve extreme deprivation in one of the two periods, and would become less risk averse when such fundamental needs are not at stake. Indifference curves reflecting this preference might be coextensive with the Maximin curves until a minimal level of provision has been reached. These are represented by curve m_1-M-m_1 in the diagram below. After that point, they might curve more gently, like line a_1-a_1 reflecting the willingness to trade greater consumption in one period for lesser-but-adequate provision in another.

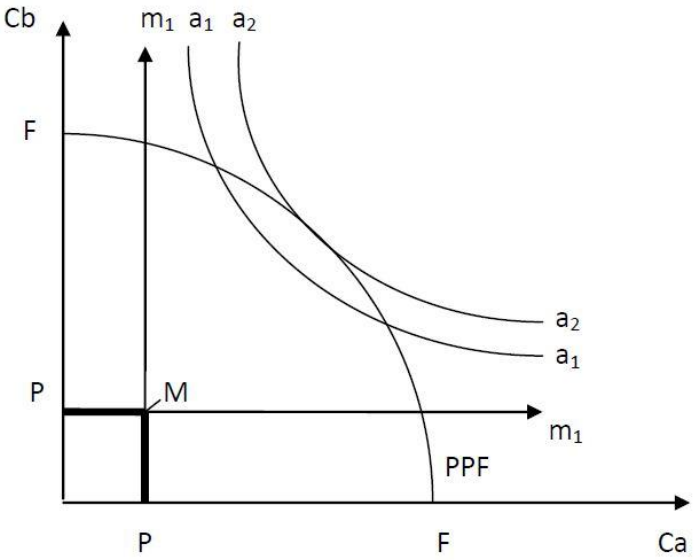

Figure 3: Two-period Production Possibility Frontier with Indifference Curves and including a minimal necessary level of provision, PMP.

The view that intergenerational social choice should prioritize the goal to minimize deprivation with respect to basic needs is sufficiently plausible that it has sometimes been defended. (Rawls 1993, Wolf 2009) It is not unreasonable to suppose that an impartial chooser would be more risk averse concerning outcomes that leave some with basic needs unmet. However, such a chooser might also be less concerned about other intergenerational inequalities, willing to sacrifice in one period for the chance of greater benefits in another after needs have been met. A view that treats basic need provision as lexically prior to other goals is simply a limiting case for views of this type. In the spirit of such a proposal, we might identify principles that define such a choice function. Call this view *triage prioritarianism*:

Triage-Prioritarianism:

1) *Triage Principle:* Minimize the number of people who lack P (the minimal level).

2) *Worst-Off Prioritarianism:* Up to the point where everyone has (at least) P, outcomes are better when they are better for those who are worst off.

This is a *triage* strategy, because within square PMP it prescribes triage trade-offs: if the choice is between (i) bringing both persons higher but neither as high as the minimal level P, or (ii) bringing one person up to level P while ignoring the person who lives in the other period, it recommends the latter. There is nothing intrinsically irrational about a "triage" strategy with respect to basic needs provision, which recommends minimizing the *number of people* who possess less than P. Such a triage strategy is fully consistent with the additional principle that once the number of people lacking P has been minimized, we should give prioritarian consideration to those who are worse off. By themselves, these two principles provide a complete ordering of alternative distributions that lie on or within PMP, but are consistent with a variety of different principles for ordering outcomes that lie outside PMP.

Since P represents the minimal level of provision, a person who aims to minimize the number of people who lack P would prefer all points on line PMP to points that lie within the boundary of line PMP. Prioritarian concern for the worse off implies that points on PMP that are closer to M are universally preferred to those that are further from M. A person with such a preference structure will be indifferent between points on PMP that are equidistant from either axis, since they will be mirror images of the same distribution. There is no way to draw smooth, continuous, differentiable indifference curves on this diagram that will describe the values of the 'triage' chooser described here. Perhaps this reflects the limitations of the modeling method, and not a problem with the principles under consideration. The triage strategy frames the choice around different values than the ones represented in the model. Since standard social choice

models cannot represent conceptions of justice like the triage model, the use of such models may precipitously and inappropriately constrain the range of theoretical alternatives.

VI. Justice between Persons not "Generations?"

There is another serious objection to models like the one discussed above: when the axes represent alternative 'generations,' as they are often specified, such models assumes that *time* is relevant from the perspective of justice, and that "generations," understood as *groups* of people who live at different times, are the relevant subject of distributive justice. We might instead employ a model that represents distributive justice as a matter of distribution among individuals who live at different times, instead of among generations. To see why this is different and how it might be done, note that we can arrange human generations into an array, where each generation, or birth cohort, is represented as a collection of individuals:

$$\begin{array}{cccc} U_{1,1} & U_{1,2} & U_{1,3}\ldots & U_{1,n} \\ U_{2,1} & U_{2,2} & U_{2,3}\ldots & U_{2,n} \\ U_{3,1} & U_{3,2} & U_{3,3}\ldots & U_{3,n} \\ . & . & . & . \\ . & . & . & . \\ . & . & . & . \\ U_{\delta,1} & U_{\delta,2} & U_{\delta,3}\ldots & U_{\delta,m} \end{array}$$

Each row of this array includes individuals, not goods. Since economists typically identify *utility levels* as the relevant measure of individual well-being, we can use 'U' to represent the individuals listed. Each element of this matrix could then represent the utility level

of some person, indexed by generation, and by number within that generation, so that $U_{3,6}$ represents the level of well-being enjoyed by the 6th person in the 3rd generation. Utilitarian distribution, however, is only one among many different possibilities. For that reason, the values included in this matrix should be understood to represent *whatever it is that distributive justice is understood to distribute.* Alternative accounts of the *currency* of distributive justice will involve different interpretations, but it is not necessary to resolve that issue here.

We might stipulate that the rows in this array represent generations, G1, G2, G3,… Gn…

$$
\begin{array}{llll}
G_1 = & (U_{1,1} & U_{1,2} & U_{1,3} \ldots U_{1n}) \\
G_2 = & (U_{2,1} & U_{2,2}, & U_{2,3} \ldots U_{2n}) \\
G_3 = & (U_{3,1} & U_{3,2} & U_{3,3} \ldots U_{3n}) \\
. & . & . & . \\
. & . & . & . \\
. & . & . & . \\
G_\delta = & (U_{\delta,1}, & U_{\delta,2} & U_{\delta,3} \ldots, U_{\delta,m})
\end{array}
$$

But how should generations be distinguished? In principle $U_{1,1}$ could represent any individual person, past or present. But for our purposes here, we can arbitrarily stipulate that the first generation to be modeled includes everyone who was alive at 12:00 AM on January 1 of the year 2000, arranged along the row according to birth order with the oldest listed first. We may further stipulate that each subsequent generation includes the *next* 7 billion people to come into existence, so by this stipulation n = 7 billion. Thus the first generation includes all of the (roughly) 6.1 billion people alive at the specified time, plus the next .9 billion people born after 2000. While these stipulations are intentionally arbitrary, they make successive generations equinumerous. They also have the implication that new generations arrive on the scene more quickly when global fertility rates are high, and more slowly when fertility rates are low. Since

we do not know the total number of human generations so defined, I have identified the last generation as Gδ. In this way, we can refer to this last generation (and to each of the intervening generations) without knowing its number.

This matrix, then, represents all of the people now in existence, everyone who has died since the year 2000, and every person who will ever exist in the future. It follows Dasgupta and Heal (1979) in the assumption that the total number of persons who will ever exist is finite. Not everyone regards this assumption to be obvious, but perhaps it is likely. The last generation might disappear when the sun eventually explodes to destroy the earth, or when the universe finally reaches an entropy equilibrium. All generations except the last will be equinumerous. I have represented the number of the last generation as m.

With such an array in mind, we can again consider alternative ways to model intergenerational distributive justice. For example, we *could* define a function that measures tradeoffs between the different "generations" (G1...Gn) like Mueller's model, discussed above. But this is now revealed to be a peculiar way to model intergenerational relations, since the way generations have been defined is entirely arbitrary. Since other methods we might use to individuate generations would involve similarly arbitrary assumptions, the notion that intergenerational distributive justice should take as its subject allternative allocations between *generations* should now seem arbitrary. We should instead consider the allocation of burdens and benefits among the individuals who comprise different generations, not between the generations themselves. In developing a theory, we might specify an arbitrary array of generations like the one above, and then evaluate alternative principles of distributive justice based on the implications they would have for the individuals represented. Because we do not know the total number of people who will ever exist, we do not know many particular features of

the array that applies to our world. In spite of this, we can still evaluate alternative principles and policies in terms of their consequences for *any* of the alternative arrays that might apply. Since our choices may *change* the number of persons who will exist in the future, and we may need to compare alternative policies that involve different numbers of future generations. Comparisons that involve different numbers of people and generations will raise special problems: it is difficult to compare the benefits or costs a future person could experience under different alternatives if that person would not have existed at all in one of them. Different writers have developed alternative methods for making such comparisons, but none of them are uncontroversial. (Broome 2004, Mulgan 2006, Wolf 2004, 2009) A full theory of intergenerational justice would need to include principles for making such comparisons.

While it may not be possible to identify a single intergenerational/interpersonal distribution as optimal from the perspective of justice, we might once again endeavor to rule out certain kinds of intergenerational trade-off as *prima facie* unjust. For example, in the case of justice among contemporaries, we typically regard it to be *prima facie* unjust to sacrifice the basic needs of some people in order to satisfy the non-need wants of others. Were we to adopt such a principle in the intergenerational case, we could formulate it as an action guide for members of the present generation, which ever generation that may be at the time when the principle is employed. Such a principle might have implications similar to the *triage prioritarian* view considered earlier, and might look something like this:

> **Needs Principle:** Present actions, policies, and institutions are *prima facie* unjust if their effect is to undermine the ability of future people to meet their basic needs, in order to satisfy the non-need wants of present and temporally proximate people.

Except for the focus on persons instead of generations, this principle is practically identical to the famous *Brundtland Definition of Sustainability*, which states that institutions are sustainable when they "meet... the needs of the present generation without compromising the ability of future generations to meet their own needs." (WCED 1987, p. 43)

VII. Conclusion

The development of a theory of intergenerational distributive justice would require comparison and evaluation of alternative principles and their respective grounds for support. But in evaluating the alternatives, it is important also to keep alive the possibility that no theory of intergenerational distributive justice will be fully satisfactory. As Parfit (1984) has shown, future generations raise special problems and paradoxes for standard moral and political theories, and there may be no theory that fully satisfies all of the various requirements we might wish to impose. For some, this has seemed a good argument for skepticism about intergenerational justice. (Beckerman & Pasek 2001, de-Shalit 1995, Gauthier 1986) Others have not given up on the attempt to balance and qualify competing principles and interests in the effort to articulate a theory that appropriately represents our obligations to future generations.

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Cross References: Liberalism, Environmentalism, Contractarianism, Contractualism and Political Liberalism, Utilitarianism and Consequentialism, Left Libertarianism, Libertarianism, Needs and Distributive Justice, Capabilities and Social Justice, Social Choice Theory.