HEDONISTIC ALTRUISM AND WELFARE ECONOMICS

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1. INTRODUCTION

Consider the following examples.

EXAMPLE 1. Two children, Ann and Sally, are tied for a prize, and you are the judge. You have determined that both children will be equally happy with the prize, and that they are equally deserving of it. No affirmative action is required: the two children come from similar socioeconomic backgrounds. Suppress issues of fairness by assuming you *must* award the prize to one of the two children; you cannot publicly randomize.

The only discernible difference is that Sally happens to have a grandmother who dotes on her and who will be ecstatic if Sally wins. (Anne's corresponding grandmother is, for concreteness, deceased.)

Whom would you offer the prize to?

EXAMPLE 2. There are two types of occupations: skilled and unskilled. Both types of labor enter as inputs in a concave production function satisfying the Inada conditions, and wages are equal to marginal product. Suppose that a large number of identical, altruistic parents must make the decision to "skill" their children at a given cost. Is it possible for all of them to make the same *choices*? The answer is no. If all of them leave their descendants unskilled, then the return to skilled labor will become enormously high, encouraging the acquisition of skill. Yet, it is not possible for all parents to educate their children: the skill premium would vanish or turn negative. Therefore, identical parents must make different decisions (Mookherjee and Ray, 2003).

To be sure, the parents must be exactly indifferent. The parents with skilled children sacrifice their own consumption but are rewarded by the altruistic utility they get from having skilled offspring. The parents of unskilled children enjoy high consumption. It isn't that any parent is different from any other, or differentially "responsible" in some way. But the *children* have a definite preference: they would strictly prefer to have been educated.

Which parent-child "dynasty" would you say enjoys higher welfare: the one that chose to educate their child, or the one that didn't?

In both the examples, two individuals (the two children, or two parents) are equally happy while a third individual, who is linked to the others via altruism, enjoys an externality. In the first case it is the grandmother who derives hedonistic utility from her grandchild's joy; presumably, it isn't some social obligation towards the child's happiness that makes the grandmother happy. So the grandmother's "additional" happiness is

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a good that any social planner (say, a utilitarian) would presumably value. In the second case matters are a bit trickier. The two individuals here are parents, and their "equal happiness" comes from the fact that one makes a "sacrifice" for her child (and has a skilled child who gives her much joy), while the other enjoys high consumption, but has an unskilled child who does not bring her the same joy. These two effects cancel each other out, as they must because both parents have access to exactly the same feasible set, so the outcome must be envy-free. We are left with two equally happy parents, and in one case with the byproduct of a skilled (and therefore happier) child.

The reason why the second example is trickier is connected to the use of the word "sacrifice". Is the parent who educates her child *truly* balancing one form of happiness (derived from additional consumption) against another (having a successful child)? Or is she balancing the joys of own-consumption against a conditioned norm that requires her to be altruistic with regard to her own child?

The philosophy of this is interesting and not quite allowed for in the choice-theoretic paradigm that underlies welfare economics. One possibility is that own-consumption and a happier child are truly two pleasures that are traded off by the parent (leading to indifference in the net). Call this the case of *hedonistic altruism*. In this case, a Bergson-Samuelson planner must declare the skilled dynasty as enjoying higher social welfare than the unskilled dynasty. The other possibility might be called *obligatory altruism*: the parents trade off their own "true" utility, entirely defined on their own consumption, from the social obligation of caring for their children. In this case a utilitarian planner may well declare the two dynasties to be making equal contributions to social welfare.

In what follows, we consider some implications of the purely hedonistic viewpoint.

2. Hedonistic Ramsey Altruism

Consider the classical model of optimal growth, in which, given a feasible consumption path $\mathbf{c} = \{c_t\}$, each generation t gets hedonistic utility from the "tail" sequence starting at date t:

$$V_t(\mathbf{c}) \equiv \sum_{s=t}^{\infty} \delta^{s-t} u(c_s),$$

Writing this as an obvious recursion, we can say that

$$V_t(\mathbf{c}) = u(c_t) + \delta V_{t+1}(\mathbf{c}). \tag{1}$$

(This is a first step towards writing the well-known Bellman equation.) How do we interpret (1)? Here, I adopt the same view as did Barro (1974) and Loury (1981): that the generation alive at any date t derives utility from its own "lifetime consumption" (all collapsed into c_t), and — suitably discounted — from the overall payoff $V_{t+1}(\mathbf{c})$ to the next generation.

Nothing could be conceptually simpler than this example. If the overall payoff to an agent rests on a hedonistic interpretation of altruism, then V_t is pure utility. If a social planner is utilitarian, he *must* add up the utilities of all these generations, discounted at some rate

β, say. The social welfare W from a stream $\mathbf{c}$ is therefore given by

$$\begin{aligned} W(\mathbf{c}) &= \sum_{t=0}^{\infty} \beta^t V_t(\mathbf{c}) \\ &= \sum_{t=0}^{\infty} \beta^t \sum_{s=t}^{\infty} \delta^{s-t} u_s(\mathbf{c}) \\ &= \sum_{t=0}^{\infty} \sigma(t) u_t(\mathbf{c}), \end{aligned} \tag{2}$$

where

$$\sigma_t \equiv \sum_{k=0}^{t} \beta^k \delta^{t-k}. \tag{3}$$

In particular, if the social planner discounts the future at the same common rate as that used by every agent in the economy, then $\beta = \delta$. Using (3), we must conclude that

$$W(\mathbf{c}) = \sum_{t=0}^{\infty} t\delta^t u_t(\mathbf{c}) \tag{4}$$

Note that the effective discount factor of the planner, given by the sequence $\{t\delta^t\}$, does not decay as quickly as δ^t. If preferences are truly altruistic and not derived from some sense of social obligation, the planner must count a future generation several times: once for the direct contribution to social welfare and once each for every time an earlier generation values that generation. Effectively, an externality is created.

PROPOSITION **1.** *If $\beta > 0$, then there is scope for nontrivial welfare economics in the hedonistic Ramsey model: specifically, each generation saves too little relative to the utilitarian social optimum. This is true irrespective of the relative magnitudes of β and δ.*

This is an odd result, in that no generation disagrees with any other. Every generation has exactly the same utility indicator and has exactly the same ordering over future generations. Yet there are externalities that are not internalized: an agent values the utility of his descendants, but relative to a Bergson-Samuelson planner, *never* enough. Note that that utilitarianism is just a simplification: any social welfare function that is strictly increasing in all payoffs will yield the same result.

Gollier and Weitzman (2010) and Jackson and Yariv (2013) argue that a utilitarian planner who aggregates *n simultaneously living* agents, each of whom has the standard utility function

$$\sum_{t=0}^{\infty} \delta_i^t u(c_t)$$

must exhibit present-bias. (Here, c_t is a public consumption plan which lies in the domain of each of the agents.) It is easy to see why. Say two agents have the same utility indicator u but different discount factors δ_1 and δ_2. A utilitarian planner who aggregates these agents will have the social welfare function

$$Z(\mathbf{c}) = \sum_{t=0}^{\infty} \left[\delta_1^t + \delta_2^t\right] u(c_t).$$

The adjacent ratios of the effective discount factors are given by

$$\frac{\delta_1^{t+1} + \delta_2^{t+1}}{\delta_1^t + \delta_2^t},$$

and it is easy to see that these increase monotonically with t, converging to the larger of the two discount factors as $t \to \infty$. Because the ratios grow with t, the aggregated utilitarian function must exhibit time-inconsistency; present bias in particular.

The situation in our model is just the opposite.

PROPOSITION **2.** *If β and δ are both strictly positive, the utilitarian planner exhibits future bias: as a particular date comes around, he wishes to revise his saving upward relative to the planned allocation in the past.*

Proof. Consider the adjacent ratios of the effective discount factors σ_t; these are given by

$$\begin{aligned}
\frac{\sigma_t}{\sigma_{t+1}} &= \frac{\sum_{k=0}^{t+1} \beta^k \delta^{t-k}}{\sum_{k=0}^{t} \beta^k \delta^{t-k}} \\
&= \frac{\delta\sigma_t + \beta^{t+1}}{\sigma_t} \\
&= \delta + \frac{\beta^{t+1}}{\sigma_t},
\end{aligned}$$

and it is easy to check that this is strictly declining in t. This proves the proposition. ■

Proposition 2 records exactly the opposite of the present bias findings for simultaneously-lived agents unconnected by altruism.

The intuition is quite simple. As the future becomes the present, the past generations die off. They all derived utility from the anticipated well-being of the current generation. If the planner wishes to respect those expectations, then he will continue with the prearranged plan. But if not, the planner always wants to penalize the current generation in favor of future generations. We have, then, a society where even if every agent is identical and the planner may have a discount factor that is different (in particular, smaller) than the common discount factor of the agents, the planner will always wish to exhort the current generation to do more for the future than whatever they are doing of their own free will. Indeed, the planner will want to exhort them to do more than what he previously planned for them to do.

This is the only case I know of in which utility aggregation leads to future bias, instead of present bias. For that reason alone, it seems interesting. But it can also form a (very spare and sparse) basis of a theory of populism. In this world, it seems that social welfare maximization, whether utilitarian or not, must always push us even further towards future generations than we ourselves are prepared to do on the basis of hedonic altruism alone.

It is only when individual dynasties can credibly say that their own actions are based on *obligatory* rather than individual altruism, that a social planner would perhaps not want to go further than the individuals would. That gives us the basis for a non-populist policy even in a world in which every generation is fully consistent with every other generation in their hedonistic attitude towards future generations.

A final (minor) remark: this argument requires agents to feel *some* degree of altruism in the first place. If we set $\delta = 0$, then a planner who "agrees" with the agents will set $\beta = \delta = 0$, and there is no "disagreement". If $\beta > 0$, there is disagreement, of course, but no time-inconsistency on the part of the planner.

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