CHAPTER 6

HOW SUSTAINABLE IS DISCOUNTING?

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Abstract: Discounting has caused disquiet because it trivializes the very long term. Several arguments have been advanced for reducing the discount rate over time. They include justice to future generations, and conformity with the discount profile that people seem in practice to apply. However, a declining discount rate leads to inconsistent preferences through time. In a variety of circumstances where components of value are aggregated across consumers, products and scenarios, components with a low rate of diminishing marginal utility become increasingly dominant in forming the aggregate discount factor. The reasons given for disaggregation throw light on weaknesses in the justifications of discounting: reinvestment at compound interest to compensate for future damage may not take place; time preference, if interpreted as preference for immediacy, has no implications for discounting of futurity. The declining aggregate discounting protocol has political allure, but may lead to indefinite postponement of worthwhile investment.

1. INTRODUCTION

Discounting is a process applied by economists ostensibly to give appropriate weight\(^1\) to benefits and costs at some future time, and, collaterally, to allocate investment funds and resources among projects competing for their use. Classically, and almost invariably in practice, discounting has taken negative exponential form, such that:

\[
[present\ equivalent\ value] = \frac{[expected\ future\ value]}{(1 + [discount\ rate])^{[future\ time]}}
\]

The conversion factor, \((1 + [discount\ rate])^{[future\ time]}\), is called the discount factor, and will be frequently alluded to in the following sections.

The justifications given for this process and format have been many and varied. For example, the capital rationing justification refers to allocative efficiency: projects whose present equivalent value of costs exceeds the present equivalent...
value of revenues have low financial growth potential, and should be rejected. The
time preference justification acknowledges the popular desire for early consumption.
It refers not only to psychological impatience, but also to the persuasive argument,
that less weight should be given to increments of consumption enjoyed by future
citizens, since they will already be more affluent – and hence less needful – than
present citizens.

But in recent years there has been an unremitting debate about which discount
rate is appropriate; and increasingly the entire process is under challenge. The
elements of the controversy are reviewed in Price (1993a). Particularly, in the
decade following the Rio Earth Summit, concern was widely expressed about the
implications of discounting for the importance given to very long-term costs and
benefits (see for example the selection of views compiled by Portney & Weyant,
1999).

This widespread disquiet had two roots:

• distaste for the results

• dissatisfaction with the reasoning by which they were derived.

Notably, discounting between generations seemed to conflict with the
requirements of sustainability, which are now central to the declared policies of
many governments and organizations (e.g. Gummer, 1994).

Stepping aside from the sustainable development debate, which has been
confused by the wanton proliferation of definitions, “sustainable” actually means:

a. capable of continuing indefinitely

b. susceptible of being logically defended.

This paper discusses the relationship of discounting to sustainability as
interpreted in each of these senses. It examines whether, in the light of concerns
centering on sustainability, discounting

a. ought to be continued indefinitely, and especially at a constant rate; and, if
not,

b. whether arguments for discounting are logically and consistently defensible,
even within a short time horizon.

After considering the consequences of discounting according to different
protocols, it reviews ethical, democratic and empirical arguments for discounting at
a rate which falls through time. It explores in detail how the effects of diminishing
marginal utility of consumption may also lead to falling discount rates. It shows how
discounting may actually favor future generations – but that a declining discount
protocol is not always the best one for this purpose. Then it extends the arguments
from which declining rates have been derived, to suggest that in some circumstances
no discounting at all may be justified. Finally, it casts a skeptical eye at the political
advantages of not sustaining the discount rate at the current high level.