An experimental test of dual discounting for consumption and the environment*

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Abstract

Overall economic growth is projected to persist while the state of the environment is stagnating or in decline. Public policy is advised to account for the increasing relative scarcity of nature by uplifting future environmental values or discounting market consumption goods and the environment at differing rates. Yet, no empirical study to date has estimated preference parameters necessary to calibrate dual discount rates. Here, we conduct a laboratory choice experiment to fully specify the canonical dual discounting approach. We find that preference elasticities differ markedly between private consumption and non-market environmental benefits, implying that they are only weak substitutes. Using recent estimates of good-specific growth rates, we find a wedge between the dual discount rates of around 1.5 percentage points. We show that the error made by using a single discount rate and constant relative prices almost exclusively concerns the environmental discount rate. As a key diversion from standard theory, we document an important role of loss aversion, as preference estimates depend on the sign of growth. We show that this motivates a downward level-shift for both discount rates, increasing the general weight of future outcomes for today's decisions. In addition, central assumptions of the workhorse isoelastic utility model are rejected, highlighting the need for discounting frameworks that align better with social preferences.

Keywords: Discounting, environment, substitutability, experiment

JEL Codes: D31, D61, H43, Q51

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