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Data Article

Discounting the distant future—Data on Australian discount rates estimated by a stochastic interest rate model

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ABSTRACT

Data on certainty equivalent discount factors and discount rates for stochastic interest rates in Australia are provided in this paper. The data has been used for the analysis of investments into climate adaptation projects in *'It's not now or never: Implications of investment timing and risk aversion on climate adaptation to extreme events'* (Truong and Trück, 2016) [3] and can be used for other cost-benefit analysis studies in Australia. The data is of particular interest for the discounting of projects that create monetary costs and benefits in the distant future.

Specifications Table

Subject area	Economics
More specific subject area	Cost-benefit analysis
Type of data	Table, CSV file
How data was acquired	Data is output of implemented model
Data format	Analysed

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Experimental factors	Data was derived based on historical government bond yields and an estimated model for stochastic interest rates
Experimental features	Data is used for discounting costs and benefits of investments into climate adaptation projects
Data source location	Australia
Data accessibility	Data is available with this article

Value of the data

- The data is designed to evaluate projects with a very long lifetime.
- The data can be used for the analysis of investments into climate adaptation.
- The data is particularly useful for discounting costs and benefits occurring in the distant future.

1. Data

The data contains certainty equivalent discount rates and discount factors for Australia, estimated based on the prominent Cox-Ingersoll-Ross model [1] of stochastic interest rates (Table 1). The provided rates can be used for discounting costs and benefits of investment projects with a lifetime of up to 200 years.

Table 1
Certainty equivalent discount rate (CE) and discount factor (F) estimated based on the applied CIR model. Discount rates and factors are provided for different initial interest rates, including $r(0)=1\%$, $r(0)=3\%$, $r(0)=5\%$, $r(0)=7\%$ and $r(0)=9\%$.

Time (years)	Initial interest rate (r_0)									
	1%		3%		5%		7%		9%	
	CE	*F*	CE	*F*	CE	*F*	CE	*F*	CE	*F*
0	1.00%	1.0000	3.00%	1.0000	5.00%	1.0000	7.00%	1.0000	9.00%	1.0000
1	2.39%	0.9826	3.63%	0.9671	4.86%	0.9519	6.10%	0.9369	7.33%	0.9221
2	3.24%	0.9550	3.99%	0.9309	4.74%	0.9073	5.49%	0.8843	6.24%	0.8620
3	3.74%	0.9221	4.20%	0.8935	4.65%	0.8657	5.10%	0.8388	5.56%	0.8128
4	4.05%	0.8867	4.32%	0.8562	4.59%	0.8266	4.87%	0.7981	5.14%	0.7706
5	4.23%	0.8507	4.40%	0.8196	4.56%	0.7897	4.72%	0.7608	4.88%	0.7330
6	4.34%	0.8150	4.44%	0.7842	4.54%	0.7546	4.63%	0.7261	4.73%	0.6987
7	4.41%	0.7801	4.46%	0.7500	4.52%	0.7212	4.58%	0.6934	4.64%	0.6667
8	4.45%	0.7463	4.48%	0.7172	4.51%	0.6893	4.55%	0.6625	4.58%	0.6367
9	4.47%	0.7137	4.49%	0.6858	4.51%	0.6589	4.53%	0.6331	4.55%	0.6083
10	4.48%	0.6825	4.49%	0.6557	4.51%	0.6299	4.52%	0.6051	4.53%	0.5813
20	4.50%	0.4353	4.50%	0.4180	4.50%	0.4015	4.50%	0.3856	4.50%	0.3704
30	4.50%	0.2775	4.50%	0.2665	4.50%	0.2560	4.50%	0.2458	4.50%	0.2361
40	4.50%	0.1769	4.50%	0.1699	4.50%	0.1632	4.50%	0.1567	4.50%	0.1505
50	4.50%	0.1128	4.50%	0.1083	4.50%	0.1040	4.50%	0.0999	4.50%	0.0960
60	4.50%	0.0719	4.50%	0.0690	4.50%	0.0663	4.50%	0.0637	4.50%	0.0612
70	4.50%	0.0458	4.50%	0.0440	4.50%	0.0423	4.50%	0.0406	4.50%	0.0390
80	4.50%	0.0292	4.50%	0.0281	4.50%	0.0270	4.50%	0.0259	4.50%	0.0249
90	4.50%	0.0186	4.50%	0.0179	4.50%	0.0172	4.50%	0.0165	4.50%	0.0158
100	4.50%	0.0119	4.50%	0.0114	4.50%	0.0110	4.50%	0.0105	4.50%	0.0101
120	4.50%	0.0048	4.50%	0.0046	4.50%	0.0045	4.50%	0.0043	4.50%	0.0041
150	4.50%	0.0013	4.50%	0.0012	4.50%	0.0012	4.50%	0.0011	4.50%	0.0011
200	4.50%	0.0001	4.50%	0.0001	4.50%	0.0001	4.50%	0.0001	4.50%	0.0001