ASK: NUS ECONOMISTS

Using property prices to guide climate change policies

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How do governments estimate the impact of costs and benefits of strategies to reduce carbon in cli-

te change? What research can guide such estimates of costs and benefits over the very long term?

In 2013, the Intergovernmental Panel on Climate Change reported that warning of the earth’s atmos-

phere and oceans is “unavoida-

tive” and the dominant cause is hu-

man influence.

Among the expected effects of rising atmospheric concentrations of greenhouse gases are heat waves, rising sea levels and coast-

al flooding and droughts, among other extreme phenomena. Influ-

tential reviews such as the one headed by British economist Nick Stern described climate change as “the greatest and widest-ranging market failure ever seen.”

In response to such views, go-

governments are considering invest-

ments in carbon abatement strate-

gies. These are designed to reduce greenhouse gas emissions, such as by increasing petrol taxes and switching from coal to cleaner but more expensive fuels.

A government’s decision to in-

vest in such carbon abatement strate-

gies depends heavily on a cost-benefit analysis. If the bene-

fits of greenhouse gas reduction outweigh the costs, then invest-

ment makes financial sense. But abatement strategies have costs and benefits that occur over many decades and centuries.

Since a dollar today is worth more than a dollar in the future, a cost-benefit study requires all fu-

ture dollars to be converted into today’s equivalent dollars. The rate of conversion used is called the discount rate.

Because costs are mostly con-

centrated in the first few years whereas benefits are enjoyed pos-

sibly many years in the future, the discount rate is a major determi-

nant in whether an investment project is economically justified. A high discount rate emphas-

izes the present, valuing costs rela-

tively more importantly than bene-

fits, making it less likely that the net payoff to an investment is posi-

tive.

Similarly, a low discount rate means costs are treated as relatively less important than benefits, and an investor’s net payoff is more likely to be positive.

Cost-benefit analysis can be controversial, par-

ticularly when applied to valuing policies to protect the environment, but we will not dis-

cuss the controversy here.

Our focus is on how Singapore’s property market can guide us on discounting future benefits. Under leasehold, property reverts to the landlord at the end of either 99 years or 999 years. A freehold property retains the owner’s prop-

erty in perpetuity.

The premium paid for a free-

hold property over a 90-year or 999-year leasehold property is partly due to how people value the future since the utility provided by a freehold prop-

erty extends beyond that of a 99-year or even a 999-year lease-

hold property.

Using the differences in prices paid for properties of different tenure lengths, a direct measure of how people value the far-in-the-

future utility of freehold proper-

ties, we can infer the future benefit of a 999-year leasehold and a 999-year leasehold property.

If society places a high value on the future, then a low discount rate should be used since society considers a future dollar to be worth almost as much as a current dollar.

Leasehold and freehold properties differ in their tenure length, the number of years until a prop-

erty reverts to the landlord, of-

ten the government. Under leasehold, property reverts to the landlord at the end of either 99 years or 999 years. A freehold property retains the owner’s property in perpetuity.

The premium paid for a leased-

hold property over a 90-year or 999-year leasehold property is partly due to how people value the future since the utility provided by a leasehold property is much lower than that of a 99-year or even a 999-year leasehold property.

Leased and freehold properties differ in their tenure length. The premium paid for a freehold over a 99-year or 999-year leasehold property is partly due to how people value the future.

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