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Estimating the Residential Land Damage of the Fukushima Nuclear Accident[☆]

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Abstract

The cost of a nuclear power plant accident critically depends on people's willingness to pay for avoiding exposure to the nuclear fallout. This paper is the first to estimate such a willingness to pay by observing the change in transaction prices before and after the Fukushima nuclear accident with the degree of radioactive contamination. The estimates, which are based on hedonic price equations with the degree of radioactive contamination measured by airborne surveys, indicate that the contamination decreased the price of residential land and imply a substantial willingness to pay to avoid exposure to the radioactive fallout. The estimated total residential land depreciation ranges from 1.5 to 3.0 trillion yen, approximately equivalent to 15-30 billion US dollars, or about 0.13-0.25% of Japan's total land value.

Keywords: Willingness to Pay, Fukushima, Nuclear Power Plant, Land Property Damage, Radioactive Contamination, Land Contamination
JEL: Q51; Q53; R31

1. Introduction

How high is the cost of nuclear power generation? Radioactive contamination caused by the collapse of the Fukushima Daiichi nuclear power plant

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