

Optimal Spatial Emission

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March 27, 2024

Abstract

We present a multi-sector quantitative spatial model designed to elucidate the optimal spatial allocation of carbon emissions. We derive sufficient statistics for optimal spatial carbon taxes, serving two objectives. First, we employ a linear approximation of optimal spatial carbon emission, leveraging observed spatial economic data and the derived sufficient statistics. Second, based on these statistics, we introduce a simple iterative algorithm for computing high-dimensional optimal spatial carbon taxes. Applying our model to the 2017 Chinese economy, we find that implementing optimal spatial carbon taxes would enhance Chinese welfare by 1.42%.

JEL classification: F18; R11; C61

Keywords: Carbon emission; Carbon Taxes; Spatial Model

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