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中国工业绿色生产率、减排绩效与减排成本

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Green productivity, deduction performance, and abatement cost for the industry China

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摘要 本文基于方向距离函数的SML指数方法和DEA方法分别测算了1995-2009年我国工业绿色生产率和减排成本,然后基于面板数据模型估计方法,探讨了工业减排绩效和成本的影响因素及其行业差异。研究结果表明,我国工业绿色生产率先升后降,其增长的主要动力来自绿色技术进步;工业减排成本呈波动式增长趋势,低排放强度行业较高;绿色生产率促进工业减排绩效增长,低排放强度行业中绿色技术进步的减排作用较大,高排放强度行业中绿色技术效率的减排作用更明显;绿色生产率对工业减排成本的影响作用不明显,优化能源结构会降低高排放强度行业减排成本,人力对资本的替代有利于低排放强度行业减排成本的降低。

关键词： 工业 绿色生产率 减排绩效 减排成本

Abstract： Based on direction distance function with Sequential Malmquist-Luenberger (SML) index and Data Envelopment Analysis (DEA) respectively, the green productivity and abatement cost for the industry in China from the year of 1995 to 2009 are estimated. Then the effect factors of deduction performance and abatement cost with their industrial differences are discussed by a panel data estimation model. The results show that green productivity has declined after increased at the beginning and is driven by the progress in green technology. Abatement cost presents a fluctuant increase trend and is quite high in the industry with low carbon emissions intensity. Green productivity promotes deduction performance increase, the progress in green technology has the most effect on the deduction of the industry with low carbon emissions intensity, and green technical efficiency has the most impact on the industry with high carbon emissions intensity. Green productivity has insignificant effect on abatement cost. Energy consumption structure optimization is able to play a great role in abatement cost reduction in the industry with high carbon emissions intensity, and labor capital replacement is able to facilitate abatement cost reduction in the industry with low carbon emissions intensity.

Keywords： industry green productivity deduction performance abatement cost
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