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基于非参数回归技术的DEA两分步法优化与政府绩效评价

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To Optimize DEA——Tobit Two-stage Method and Evaluate the Government Performance Based on Nonparametric Regression Techniques

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摘要 针对DEA--Tobit两分步法中存在的问题,在DEA二分步法的两个阶段都采用非参数方法,在保证两个阶段假设一致性的同时,通过对我国地方政府的实证分析,验证了相关假设.Nadaraya-Watson非参数回归结果显示政府效率得分随税收、政府收入明显增加而减少;非参数双变量密度估计验证了上述结论,等高线图还表明赤字变量与效率之间不稳定的变化关系,从而对上述回归结果结论进行了修正;三维图示揭示了地方政府集权程度与政府绩效存在负相关的潜藏信息.然而,基于非参数回归技术的DEA两分步法存在的回归样本数量限制、投入产出指标设置问题还有待探讨.

关键词： 政府效率 核光滑 非参数回归

Abstract： In view of the problem of DEA-Tobit Two-stage Method,we apply nonparametric regression Techniques in latter stage,rather than econometric methods such as OLS or Tobit related techniques.By relations between government performance and some independent variables.Using Kernel smoothing,we discover there lies negative correlation between government performance and revenue,government income.Nonparametric bivariate density estimation prove such conclusion.Contour map shows unstable relation between deficit and government performance,which corrects previous conclusion.Three-dimensional graph discloses the potential information about centralization degree of government power.However,DEA--Tobit Two-stage Method with nonparametric regression techniques has some problems,such as restriction of sample number,index setup,etc.

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