

## 信息非对称条件下的质量预防决策分析

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## Quality Prevention Decision Analysis in Supply Chain under Asymmetric Information

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**摘要** 研究了不同信息条件下供应链的质量预防问题,在文献[1,2]建立的有关质量签约问题的优化模型基础上,把供应商作为委托人和购买商作为代理人建立了供应链的质量预防决策委托代理模型。其中,质量预防水平和供应商要求购买商的前向支付是供应商的决策变量,质量评价水平是购买商的决策变量。本文重点研究了非对称信息下供应链的质量预防和前向支付问题,考虑了购买商质量评价信息隐匿情况,运用极大值原理推导了供应商的质量预防和前向支付的最优解。最后结合一个农机公司拖拉机销售问题进行了仿真计算和分析,对比了不同信息环境下的决策结果。

**关键词:** 非对称信息 供应链 委托代理 极大值原理 质量预防 质量评价 前向支付

**Abstract:** Quality prevention decision problem in supply chain is studied under different information backgrounds. Based on the quality contracting optimization models in references<sup>[1,2]</sup>, a principal agent model concerned with quality prevention decision is set up with regards to supplier as principal and buyer as agent. In the models, quality prevention and up-front payment variables are decided by the supplier, quality evaluation variable is decided by the buyer. Focus is on the study of quality prevention decision problem under asymmetric information. Maximum principle is used to get the solution to quality prevention and up-front payment variables when buyer evaluation information is hidden. At last simulation is done concerned with an agricultural machines company's tractor selling problem. Simulation results under different information backgrounds are analyzed and compared.

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