

## 高等教育最优投资双层规划模型研究

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## Research on High Education Optimal Investment Bilevel Programming Models

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**摘要** 高等教育投资具有“双层”的特点,上层为省级主管部门,下层为高等学校。本文成功运用了双层规划模型,在不考虑高校自筹发展资金投入的情况下,建立了高等教育最优投资双层规划模型,研究了模型最优解的存在性,给出并证明了模型最优解的等价形式,设计了模型解的算法并进行了算法复杂性分析。通过求解模型,可以同时得到省级主管部门和高等学校的最优投资决策方案。文章最后还给出了考虑高校自筹发展资金的两种情况下建立投资模型和求得最优解的方法。

**关键词:** 教育 投资 双层规划 算法 最优解

**Abstract:** The investment problem on high education has bilevel characteristic,where the upper level is provincial government and the lower level are colleges.Under the assumption of omitting the support of self-financing de-veloping funds of colleges,one bilevel programming model for high education optimal investment is given using bilevel programming theory.Some important results including existence and equivalent expression of its optimal solution are discussed.An algorithm to find the optimal solution and its complexity analysis are given also.By us-ing the model established,provincial government as well as colleges can get the optimal investment solutions si-multaneously.Some remarks on methods of establishing the optimal investment models and finding their optimal solutions at two different cases,based on considering self-financing developing funds of colleges,are studied also in this paper.

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