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废旧电器电子产品双渠道回收模型及政府补贴作用研究

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Dual-channel Recycling Model of Waste Electrical and Electronic Equipment and Research on Effects of Government Subsidy

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摘要 目前我国的大部分废旧电器电子产品没有得到环保回收,回收市场上存在以有拆解资质的回收处理商为主导的正规渠道和无拆解资质的回收处理商主导的非正规渠道。鉴于此,本文建立了双渠道回收竞争模型,刻画了两种渠道各自的回收处理途径和盈利模式,给出了均衡时的回收价格和翻修比例,讨论了不同竞争情景下政府补贴的影响。结果发现当补贴额度较低时,政府补贴可以有效刺激回收量的增长、扶持正规企业的发展,但随着补贴的提升,补贴对回收总量的刺激作用减弱。研究还发现当翻修品价格较高时,旧货市场的存在可以帮助正规企业牵制非正规拆解商的发展,同时提高翻修质量门槛可以限制废旧品流向非正规处理渠道。

关键词： 废旧电器电子产品(WEEE) 回收 价格竞争 政府补贴 双渠道

Abstract： Most of waste electrical and electronic equipments have not been recycled and reused in an environment-friendly manner in China mainland where there exist two kinds of recycling channels: a regular channel with official qualification for disassembling e-waste products and an irregular channel without qualification. A dual-channel recycling model is built in this paper to describe price competition between qualified and unqualified recyclers in two channels which have different e-waste disposal approaches, and shows equilibrium recycling price and reusing ratio. Five competing scenarios and single-channel structure are discussed to explore the effects of government subsidy in two channels. Finally sensitivity analysis of parameters and numerical simulation are provided. It is found that when government subsidy is low, it can motivate the acquisition amount of e-waste products to increase greatly and help qualified recyclers win greater market share, however as subsidy increases, its role in promoting recycling reduces. To render the irregular channel absent from recycling market, the government needs to pay an extremely high subsidy fee. It is also found when the price of refurbished products is quite high, in a sense the presence of secondary market can help the regular channel to confine the development of the irregular channel. Driving up the quality threshold of refurbishment appropriately is a good way to restrict the recycling amount of unqualified recyclers. Innovatively, a perspective of studying the price competition between two kinds of recycling channels is provided in this paper, with the expectation to acquire more academic attention on e-waste recycling issues.

引用本文:

刘慧慧, 黄涛, 雷明 .废旧电器电子产品双渠道回收模型及政府补贴作用研究[J] 中国管理科学, 2013,V(2): 123-131

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