

Abstract

As one key environmental regulation measure, China's pollution levy policy has been widely discussed; however, existing research has solely concentrated on the emissions reduction effect of pollution levy policies in the short term but has ignored long-term effectiveness, which may cause research bias. Thus, taking pollution levy standard adjustments as the core independent variable, this study builds firm-level pollution data and proves that the pollution levy policy is effective both in the short and long term. Furthermore, it demonstrates that the emissions reduction effect is achieved mainly by decreasing production and increasing the removal of sulfur dioxide (**SO₂**). In addition, it is uncovered that the emissions reduction effect is mainly a result of two processes—the first is the greater use of clean energy and higher energy efficiency that can cause a decrease in the production of **SO₂**, and the second is the utilization efficiency of waste gas treatment facilities, which can increase the removal of **SO₂**.