

Environmental Tax Burden in a Vertical Relationship with Environmental Innovation*

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Abstract

We consider a market where there is one upstream firm and two polluting downstream firms that compete in quantity. A government can impose an environmental tax and choose the tax burden ratio between the upstream and downstream firms. Given the tax burden ratio, each downstream firm can reduce its emission by investing in emission abatement. We show that if the pollution causes significant damage to the environment, to minimize the amount of environmental damage, the environmental tax should be imposed only on the upstream firm. The tax should be imposed only on the downstream firms, otherwise. When the tax burden ratio for the downstream firms is small, an increase in the ratio increases the downstream firms' profits. Social welfare in the case where an environmental tax is imposed may be lower than it is in the case where no such tax is imposed.

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Key words: Tax burden ratio; Environmental innovation; Vertical relationship

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