Identifying the interaction between landfill taxes and NIMBY: A simulation for Flanders (Belgium) using a dynamic optimization model.

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ABSTRACT
In the past, landfills were emerging at an increasing pace in order to deal with growing waste generation. The negative externalities that are caused by these landfills however, together with the emergence of what is nowadays called the NIMBY (Not In My BackYard) syndrome, led to the awareness that volumes of landfilled waste had to decrease. As a result, restrictions on remaining landfill capacities emerged which causes remaining capacity to be regarded as a non-renewable, scarce resource. In this paper, a dynamic optimization model is constructed to assess the evolution of landfill volumes and landfill prices in time. Carrying out a simulation for Flanders (Belgium), landfill paths and price paths were constructed for two different scenarios. In the first scenario, landfill taxes are taken up in the model, whereas these taxes were omitted from the model in scenario two. As the results show, when landfill taxes are levied, it takes 42 years for landfill exhaustion to occur. When no landfill taxes are being used, this period would be shortened to only 20 years. Therefore, it is clear that a landfill tax has the effect that yearly landfilled volumes decrease considerably. In addition, when landfill taxes are used, discounted total welfare increases significantly. So we can conclude that, from a broad societal perspective, the added value of a landfill tax is considerable in terms of welfare gains.

JEL classifications

Q320: Exhaustible Resources and Economic Development
O130: Economic Development: Agriculture; Natural Resources; Energy; Environment; Other Primary Products

Keywords

Exhaustible Resources, Extractive, Landfill tax, NIMBY