Abstract: Emissions permit trading is now widely considered to be an important means of controlling emissions of greenhouse gases (GHGs) in several developed countries. However, questions about the design and implementation of emission permit markets remain open to debate, and chief among these is whether regulated emitters should be allowed to reallocate the right to emit across compliance periods, that is, whether the banking and borrowing of permits should be allowed. Since setting limits on emissions within particular periods of time has been the modus operandi of environmental regulation, allowing banking and borrowing entails a fundamental change of methodology, with implications for both the economics and philosophy of environmental regulation. Also, from the perspective of regulatory authorities, the decision to allow or not to allow banking has profound effects on tradable permit markets as a whole. When banking is allowed, market participants can convert present-year permits into future-year permits, changing the total number of permits available in a given year, which will have significant effects on market equilibrium and prices. Policy makers need to consider these implications and economic impacts fully in deciding whether or not to allow the banking and borrowing of permits. However, the majority of economic studies on tradable permits have surprisingly confined themselves to the analysis of a static framework of non-bankable permits; only a few studies have addressed the issue of bankable permits directly. The purpose of this paper is to examine the impact of permit banking on present spot trade markets in an uncertain world. On the way to this end, I examine permit banking in view of forward permit markets. Forward contracts are derivatives of future spot market trades, in the sense that the payoffs that accrue from cash settlements of forward contracts are dependent upon spot prices at the time of settlements. Thus, forward prices are closely...
related to future spot market prices. When permits are bankable, forward markets therefore indirectly link the present spot market to uncertain future spot markets. In considering uncertainty in bankable permit markets, one cannot avoid discussing forward markets and forward prices. The paper develops an analytical framework for considering forward pricing and banking impacts. It assesses the effects of banking on tradable emission permit markets, with an emphasis on how changes in such factors as uncertainty about the future, technological progress, types of market participants, and discount rate for banked permits affect current market prices under a banking regime. Findings obtained provide important implications for policy development.