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Emissions Cap or Emissions Tax? A Multi-sector Business Cycle Analysis*

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Abstract

We develop a multi-sector business cycle model to analyze stochastic implications of reducing CO_2 emissions with carbon permits or with carbon taxes in the presence of multiple sources of macroeconomic uncertainty. The model is calibrated to reflect the U.S. experience. As in previous studies, using a single-sector version of our model, we find that the cap regime generates lower volatility of real variables than the tax regime, but the latter may be preferable from the welfare perspective. Still, our multi-sector analysis points to the importance of the origin of the shocks in the ranking of the two instruments and to the desirability of going beyond a single-sector analysis in evaluating their merits. We find no significant difference between the cap and the tax regimes when shocks come from non-energy sectors. In contrast, the cap has lower volatility but higher welfare costs than the tax for the shocks to energy production.

Key words: Cap-and-trade; carbon tax; emissions; business cycle; multiple sectors.
JEL codes: Q52, Q58, E32.

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