



# Optimal oil taxation in a small open economy

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## Abstract

The international oil market has been very volatile over the past three decades. In industrialized economies, especially in Europe, taxes represent a large fraction of oil prices and governments do not seem to react to oil price shocks by using oil taxes strategically. The aim of this paper is to analyze optimal oil taxation in a dynamic stochastic general equilibrium model of a small open economy that imports oil. We find that in general it is not optimal to distort the oil price paid by firms with taxes, neither in the long run nor over the business cycle. The general result could be reversed depending on environmental considerations and available fiscal instruments. We provide simulations to illustrate the optimal response to shocks in such cases.

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## 1. Introduction

The international oil market has been very volatile over the past three decades. In 1999 and 2000 significant increases in oil prices have been observed, due to restrictions in oil supply by OPEC, prompting economic agents to advocate government policies to mitigate the effects of oil price increases by cutting taxes. Figure 1 represents the evolution of gasoline prices with and without taxes (see International Energy Agency, 2000). We observe that both series follow similar paths; so we can conclude that governments do not seem to react to oil price shocks by using oil taxes strategically. Given that taxes represent a large fraction of oil prices in indus-

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trialized economies (especially in Europe), governments have significant scope to use taxes to accommodate oil price shocks.

The purpose of this paper is to examine the role of oil taxes in small open economies that import oil and take as given the international oil price. A fundamental question in this framework is, how oil taxes should be set over the long run and over the business cycle. To address this question we combine two different strands of the literature: the macroeconomic incidence of oil price shocks on the one hand and optimal taxation on the other hand.

The effects of energy price shocks on economic activity have long been recognized in the literature. Kim and Loungani (1992) and Finn (1995) focus on the analysis of energy price shocks, finding that this kind of shocks can contribute to economic fluctuations. Such a contribution could be even larger in a small open economy framework, as De Miguel et al. (2003) stress. Rotemberg and Woodford (1996) argue that modifying the standard neoclassical growth model by assuming imperfect competition makes it easier to explain the size of the declines in output and real

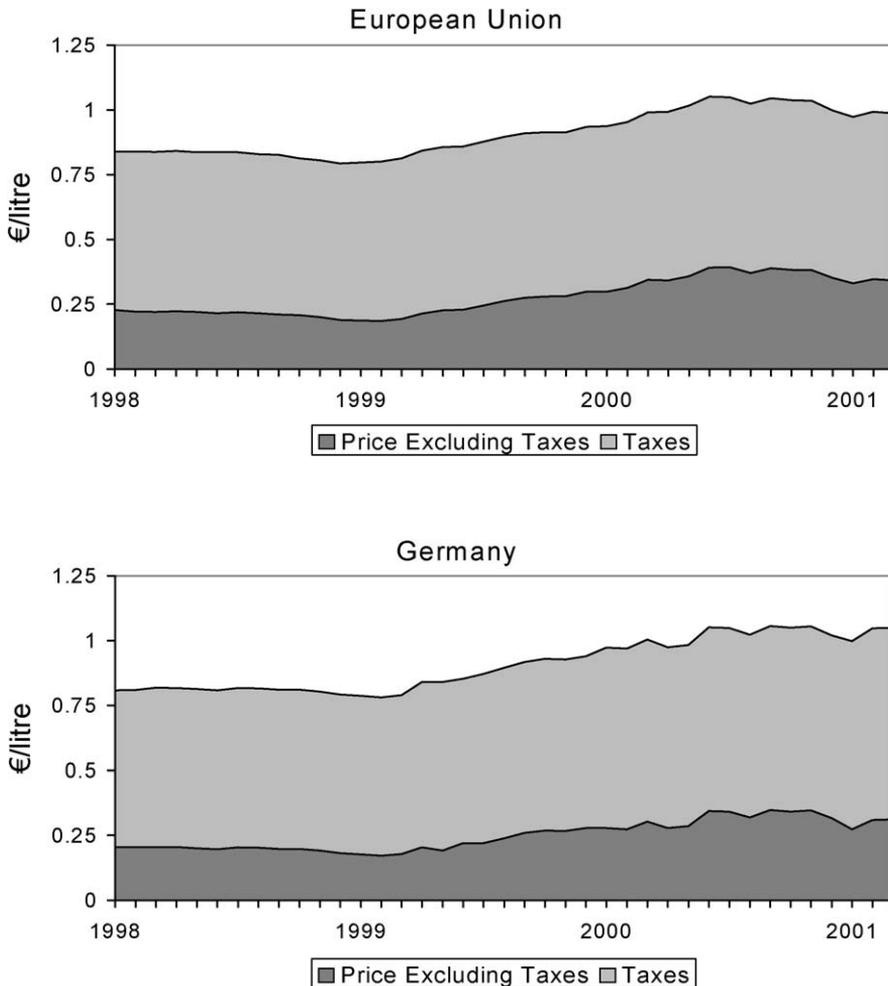


Fig. 1. Unleaded gasoline prices (1998:1–2001:3).

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