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Why fuel prices differ

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Abstract

Fuel taxes differ largely between countries. This paper reviews a number of considerations from the theory of public finance that may explain these differences. Based on a multiple regression model, we find for tax competition in Europe that small countries tend to be more aggressive than large countries by charging lower fuel taxes to attract customers from neighbouring countries. There is strong evidence that fuel is just considered as one of the many sources for government expenditure: as the share of government expenditure in GDP is higher, the fuel tax tends to be higher. No support is found for the hypothesis that fuel taxes are higher in countries where externality problems are more severe (proxied by car density of the country). In this respect, the normative literature on pricing externalities has found little support in the realities of transport policy.

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1. Introduction

Car drivers are confronted with widely varying fuel prices among countries. For example, a litre of gasoline costs about 120 US\$cents in Norway, 65 cents in Greece and 32 cents in Ghana. A first possible cause of these price differences is that extraction costs of crude oil are different between oil-producing countries. Indeed, differences in extraction costs of various countries are substantial, but crude oil is relatively cheap to transport so that one may expect small variations of prices of crude oil among countries: the main effect of lower extraction costs is a higher rent in the pertaining countries.

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Table 1
Price levels and structure for Euro 95 fuel in six European countries (June 2003, in euro cents per litre)

Country	Gas station price	Pretax price	Duty	VAT	Total tax % of the price
Belgium	95.30	28.04	50.72	16.54	70.6
France	98.19	23.18	58.92	16.09	76.4
Germany	107.08	26.86	65.45	14.77	74.9
Luxembourg	75.70	30.38	37.21	8.11	59.9
Netherlands	113.50	31.80	63.52	18.18	72.0
United Kingdom	107.26	25.19	64.69	17.38	76.5

Source: Oil Bulletin 30 June 2003.

http://europa.eu.int/comm/energy/en/oil/bulletin_en.html.

A second factor that determines fuel prices concerns the cost of refining the crude oil and of distributing the fuel. Oil refineries may be different in terms of their costs and productivity, and spatial variations in distribution costs occur because of differences in infrastructure and distances to oil refineries. Given the limited number of oil companies active in most countries, there may be oligopolistic tendencies in the market. In addition, when fuel stations are local monopolists, they may charge a mark-up. In most countries, the share of refining and distribution of fuel in total costs is rather small, however, so that this is not an important explanation of price variations (see Table 1).

The third factor concerns taxes. In most countries, taxes form the largest component of the fuel price paid by consumers. For example, in the Netherlands, the tax share of the fuel price equals about 70%. This fact reveals that the most important source of variation in fuel prices must be taxes. A similar value is found in Japan. In other parts of the world, taxes on fuel are much lower. For example, the share of taxes in the fuel price of the USA is about 25%. In some countries in Africa and Asia, especially the oil-producing ones (for example Nigeria, Iraq and Iran), fuel prices are extremely low. Here, prices are even lower than the production costs.

Thus, on what basis do governments determine fuel taxes? Finding an answer to this question is the main aim of this paper. Based on the literature on public finance, we will discuss a number of considerations governments may have to determine the level of taxes (Section 2). In Section 3, we show empirical research for about 100 countries¹ to explain the fuel tax level, taking into account the perspectives found in the literature. Section 4 follows with refined estimates, and Section 5 concludes.

2. Reasons for taxing fuel

As a starting point, note that fuel appears to be an attractive base for taxation in all countries. A fuel tax is applied almost universally. For example, many developing

¹ An anonymous referee pointed out that a similar analysis may be applied to fuel price differences between regions within the same country (for example, the states within the USA) when the regions have the competence to determine the level of the fuel taxes.

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