



A cost-benefit analysis of tunnel investment and tolling alternatives in Antwerp*

S. Proost^{1*}, S. Van der Loo², A. de Palma³, and R. Lindsey⁴

¹ *Centre For Economic Studies, Katholieke Universiteit Leuven
Naamsestraat 69, B-3000 Leuven, and CORE, Belgium*

² *Centre For Economic Studies, Katholieke Universiteit Leuven
Naamsestraat 69, B-3000 Leuven, Belgium*

³ *Université de Cergy-Pontoise, ENPC, CORE and Senior Member of the Institut Universitaire de France. Thema, 33 Bd du Port, F-95011, Cergy-Pontoise, FRANCE*

⁴ *Department of Economics, University of Alberta, Edmonton, Alberta, CANADA T6G 2H4*

Abstract

A proposal has been made to build a new tunnel under the Scheldt river near the centre of Antwerp in order to relieve traffic congestion on the ring road and in an existing tunnel. The new tunnel is expected to cost more than €1 billion, and tolls have been suggested to help finance construction and to manage demand. This paper conducts a preliminary cost-benefit analysis of a new tunnel and three alternative tolling schemes, and compares them with a do-nothing scenario and an option to toll the existing tunnel without building a new one. The two tunnels are treated as imperfect substitutes, and a multi-year accounting framework is adopted that accounts for emissions, accidents and noise externalities, road damage, revenues accruing to the national and regional governments from existing transport user charges, and the salvage value of the new tunnel. With the base-case parameter values it is found that building the tunnel is worthwhile with all three tolling regimes and yields a higher benefit than not building the tunnel and tolling the old one. Nevertheless, the net benefit from building the tunnel differs appreciably between tolling regimes, and it is sensitive to the value assumed for the marginal cost of public funds.

Keywords: Infrastructure investment; Route choice; Congestion; Tolls.

Introduction

Urban traffic congestion is a serious and growing problem in many large cities around the world. The traditional response to congestion, building new roads, is now impeded or prevented by lack of space, high construction costs and long-lead times, environmental concerns and NIMBY (Not In My Back Yard) opposition. Emphasis has

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* Corresponding author: Stef Proost (stef.proost@econ.kuleuven.be).