



NORTH-HOLLAND

Journal of Policy Modeling  
26 (2004) 95–112

Journal of  
Policy  
Modeling

# Public capital and long-term labour market performance in Belgium

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Received 1 June 2002; received in revised form 1 July 2003; accepted 1 November 2003

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## Abstract

This paper investigates the long-term output and labour market effects of public capital in Belgium within a broad model explaining private sector output and costs, private employment and capital formation, wage bargaining, price setting and aggregate demand. Model simulations show strong positive effects of public capital on private output and capital formation. Public capital and private employment, however, are found to be substitutes. A clear negative effect of public capital on employment remains, also after taking into account the effects of public investment on aggregate demand, productivity and wage formation. As to policy, this paper supports the case for an increase in public investment spending, complemented by structural labour market reform.

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*JEL classification:* E62; J23; O40

*Keywords:* Public capital; Public investment; Employment; Economic growth

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## 1. Introduction

Following [Aschauer \(1989a\)](#), a huge literature has studied the macroeconomic effects of the decline in public investment in most OECD countries since the 1970s. Most of this literature has concentrated on the consequences for output and productivity. More than 10 years later, the results are still controversial. [Aschauer](#)

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(1989a, 1989b) found highly positive and significant effects of infrastructure on productivity growth in the US and the G7. In more recent work, however, many authors have re-examined these results, often within another theoretical framework or using another methodology. Some confirm Aschauer's conclusions, others reject them (see [Sturm, Kuper, & Haan, 1998](#), for a survey).

This paper studies the effects of public capital formation on the labour market. We focus on Belgium, which like many other European countries is characterised by relatively rigid labour markets and high unemployment. For two reasons this research may be important. First, extensive studies of the labour market effects of public investment are still very scarce. Second, despite the previous, it has often been recommended that in the fight against European unemployment, investment in public infrastructure should be raised (see e.g., the [European Commission's White Paper of 1993](#) or [Drèze & Malinvaud, 1994](#)). Our main goal in this paper is to evaluate the relevance of this recommendation. Focusing on Belgium, we investigate whether or not public capital formation improves labour market performance in general, and employment in particular. To answer this question, we have developed and estimated a dynamic structural model for the Belgian economy explaining private sector output and costs, private employment and unemployment, private capital formation, wage bargaining, price setting and aggregate demand. The model allows for three channels of influence of public capital on employment: (i) direct complementary or substitution effects for given output, (ii) indirect effects on real wages, due to changes in labour productivity and/or the unemployment rate, (iii) indirect effects caused by changes in aggregate demand and the output level. Due to space limitations, we will concentrate in this paper on the main characteristics of the model and on the most important estimated long-run equilibrium relations and parameters. A complete and detailed description can be found in an underlying working paper (see [Everaert & Heylen, 2000](#)). Once estimated, we use the model to simulate private sector performance under an alternative public investment policy. More specifically, we analyse the economy's evolution if a very strong decline in public investment during the period 1982–1989 had not occurred.

It should be emphasised that the perspective of this paper is broader than what has usually been done in the literature. First, as we have mentioned before, existing research has paid relatively little attention to the influence of public capital on employment. Second, relevant findings on the employment effects of public capital generally concern only the direct complementary or substitution effects. Estimating private sector cost functions and/or factor share or input demand equations, most studies find that (i) public capital reduces private sector costs, (ii) public capital acts as a substitute for intermediate inputs and often also labour, (iii) public and private capital are complements (see again [Sturm et al., 1998](#)). In this paper we define and simulate all relevant channels of influence.

The remainder of the paper is as follows. [Section 2](#) discusses our model. [Section 3](#) presents the estimates of the model for Belgium using annual data for 1965–1996. To detect the effects of public capital on economic growth and the labour market, [Section 4](#) reports the results of our simulation experiment. We find

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