ELSEVIER

European Economic Review 47 (2003) 41–60

EUROPEAN ECONOMIC REVIEW

www.elsevier.com/locate/econbase

Should high-tax countries pursue revenue-neutral ecological tax reforms?

Thorsten Bayındır-Upmann, Matthias G. Raith*

Institute of Mathematical Economics, University of Bielefeld, P.O. Box 100131, 33501 Bielefeld, Germany

Received 1 December 1999; accepted 14 September 2001

Abstract

A politically intriguing question concerning the effects of a revenue-neutral ecological tax reform is whether such a political measure may succeed in providing a double dividend: to improve environmental quality and increase employment simultaneously. Theoretical studies reveal that for a competitive labor-market a green tax reform hardly yields a positive employment effect, whereas for a non-competitive market such an effect may well be obtained. However, little attention has focused on whether the ecological dividend remains attainable when an employment dividend accrues. We show for three different non-competitive labor-market scenarios that a positive employment effect can be expected, but that, for high-tax countries, environmental quality plausibly *deteriorates* when a revenue-neutral ecological tax reform is implemented.

JEL classification: E24; H21; H23; J51; Q41

Keywords: Environmental tax reform; Unemployment; Double dividend; Non-competitive labor market; Production externalities

1. Introduction

In recent years the idea of using the tax proceeds from an environmental tax reform to cut other distortionary taxes has attained increasing interest of politicians and economists. Particular attention is directed towards taxes on labor, i.e., income and payroll taxes. It is argued that when the tax revenue from green taxes is given back to the private sector by means of lower labor taxes, an ecological tax reform may succeed

* Corresponding author. Tel.: +49-521-106-5646; fax: +49-521-106-2997.

E-mail addresses: tupmann@wiwi.uni-bielefeld.de (T. Bayındır-Upmann), mraith@wiwi.uni-bielefeld.de (M.G. Raith).

0014-2921/03/$ - see front matter
PII: S0014-2921(01)00193-3

in providing both an improvement of environmental quality and an alleviation of the unemployment problem—and in this sense a double dividend can be obtained.

Although the idea of a double dividend is politically appealing and intuitively quite convincing, the intuition seems to rest upon partial-equilibrium arguments. General-equilibrium analyses, following the line of Bovenberg and de Mooij (1994a), demonstrate that under pre-existing distortionary taxes significant general-equilibrium effects are at work which counteract the primary positive welfare effects. And these tax interaction effects may outweigh the welcome revenue-recycling effect and frequently destroy the possibility of a double dividend. [1] This rather negative result is typically derived within a fully competitive framework (e.g., Bovenberg and de Mooij, 1994a, b; Bovenberg and van der Ploeg, 1994; Ligthart and van der Ploeg, 1999). In a competitive labor-market, in particular with linear technologies, the driving force is the elasticity of labor supply: a negative employment effect results from a decline of the real after-tax wage, as the latter erodes the incentives to work. Only if the labor-supply curve bends backwards or the initial tax system is sufficiently inefficient, [2] can a green tax reform yield a positive employment effect. [3]

One may question, though, whether the competitive labor-market model is the appropriate framework for investigating the possibility of a double dividend. First, when there is, by definition, no involuntary unemployment, an employment increase has no positive welfare effects *per se*, so the target of stimulating employment is questionable. Second, existing high unemployment rates are decisively a problem of the labor demand side, not (primarily) of the supply side. [4] And third, in most OECD countries, in particular in Europe, labor markets are, in fact, non-competitive. Some authors have acknowledged this by introducing labor-market imperfections. For example, Bovenberg and van der Ploeg (1996) assume that involuntary unemployment results from a rigid consumer wage. Koskela and Schöb (1999), using a model with consumption externalities, scrutinize the 'right-to-manage' approach under different institutional arrangements concerning taxation and indexation of unemployment benefits. They find that the outcomes are sensitive to the institutional arrangements, but that a green revenue-neutral tax reform may alleviate unemployment. [5] Schneider (1997), using an efficiency-wage model, finds that as long as the labor market is sufficiently distorted, i.e., high unemployment rates and high wage taxes prevail, a green tax reform provides a double

[1] The different effects are discussed by Goulder (1995), and the importance of pre-existing tax distortions was recently (again) emphasized by Parry (1998).

[2] The fact that, under a highly inefficient tax system, a (green) tax reform may alleviate initial inefficiencies is highlighted by de Mooij and Bovenberg (1998) (refer to their discussion of the 'tax-shifting effect'). Of course, if a tax system is heavily inefficient, there are, apart from ecological considerations, strong reasons to revise tax policies, but these inefficiencies alone do not justify pursuing an *environmental* tax reform. Hence, it follows almost trivially that the higher an economy's initial inefficiencies are, the more likely a double dividend can be reaped.

[3] Bovenberg and van der Ploeg (1994) are even more pessimistic: when a shift towards 'greener' social preferences occurs, employment declines irrespective of the slope of the labor supply curve.

[4] This view is also shared by Nielsen et al. (1995, p. 198): '[...] *in the presence of involuntary unemployment labor supply does not impose any constraint on employment*'.

[5] Similar results in different settings are derived by Marsiliani and Renström (1997) and Koskela et al. (1998).