Journal of Public Economics 83 (2002) 173–194
JOURNAL OF PUBLIC ECONOMICS
www.elsevier.com/locate/econbase

The incidence of income tax on wages and labour supply

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Received 5 April 1999; received in revised form 14 November 2000; accepted 26 November 2000

Abstract

In the simple framework of a static model for equilibrium wages and labour supplies, we show that the incidence of income tax on equilibrium wages can be measured independently from the individual labour supply elasticity. This extends recent work by [Journal of Labour Economics, 15(3) (1997) S72–S101] and [Journal of Public Economics, 65 (1997) 119–145], who estimate tax incidence on earnings, and [Econometrica, 66(4) (1998) 827–861] and [NBER Working Paper 5023 (1995)], who estimate labour supply elasticities. Our measurements are based on a large multi-level longitudinal data set of Danish private sector establishments and workers. We show that, allowing for labour supply response, there is strong evidence for partial shifting of the burden of income tax from worker to employer. Higher marginal tax rates are associated with increases in gross wages and earnings.

JEL classification: H22; J22; J31; C33

Keywords: ; Tax incidence; Labour supply; Matched employer–employee panel data

1. Introduction

Tax reforms have several simultaneous effects. In principle both market prices and individual behaviour are affected. However, most empirical research focuses

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0047-2727/02/$ – see front matter
PII: S0047-2727(01)00080-9

exclusively on the determinants of individual responses and ignores price effects. The maintained hypothesis is that taxes are fully incident on those who are formally liable to pay them and that market prices are left unchanged by tax reforms. This is an important and understated caveat to the measurements provided by recent empirical studies which use tax reforms as a source of quasi-experimental variation in order to identify and estimate 'structural' parameters.

In this paper we propose a simple model of the determination of equilibrium wages and labour supply in the presence of income tax. The parameters of the model are measured using a Danish matched establishment-worker panel of individual workers. We show that it is possible to identify the incidence of income taxes on gross wages and the elasticity of labour supply with respect to the net wage rate. Hence, we are able to extend recent studies of work incentives to allow taxes on employees (or employers) to be incident on employers (or employees), as well as allowing workers to respond to changes in the relevant equilibrium wage. Thus we do not impose an important maintained hypothesis of much other empirical work.

There is little consensus on the responsiveness of gross wages and employment to changes in labour taxation.[1] The magnitude of these elasticities depends upon three related factors: first the nature of the tax wedge driven between the real consumption wage and the real product wage, i.e., how taxes are raised;[2] second, the degree of labour market competition (reflected in the institutional structure of wage setting) and the degree of product market competition; and third, the perceived links between labour taxes and future benefits, for example through pensions, sickness and unemployment transfers.

The theoretical labour tax incidence literature has produced a variety of results according to different wage setting assumptions.[3] For example, Pissarides (1998) compares four equilibrium models of unemployment and wage determination: competitive, union-firm bargaining over wages, search with employee-firm bargaining over wages, and shirking-efficiency wages. Simulations of the theoretical models show that increased progressivity moderates wage demands and reduces unemployment in both bargaining frameworks, whereas progressivity is irrelevant in competitive and shirking-efficiency wage models.

Some papers, although primarily theoretical, turn to data in order to illustrate their arguments. Holmlund and Kolm (1995) provide Swedish evidence suggesting

[1]For a recent survey see Liebfritz et al. (1997).

[2]Nickell and Layard (1998) suggest two cases in which the type of taxation may matter for incidence. Firstly, moving from tax on income (earned and unearned) to payroll taxes on earnings only reduces the tax rate on non-labour income, which may reduce labour supply. Secondly, in the presence of minimum wages, a switch from income to payroll tax reduces the demand for minimum wage earner services because the wage cannot adjust downwards.

[3]See for example Malcomson and Sartor (1987); Jackman and Layard (1990); Lockwood and Manning (1993); Mortensen and Pissarides (1994); and Holmlund and Kolm (1995).