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Taxation and unemployment: an applied general equilibrium approach

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Abstract

We present an applied general equilibrium (AGE) modelling approach to analyse employment and unemployment effects of labour tax cuts in an economy where wages are determined through firm–union bargaining at the sectoral level. In such a labour market regime, simulations for Germany show that labour tax policies can make only a small contribution to alleviating the problem of persistent unemployment.

JEL classification: D58; E62; J60

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1. Introduction

Persistent unemployment at high levels is a central policy problem in many European countries (see OECD, 2001, for a recent overview). Among the alternative policy proposals to reduce unemployment, tax policy shifts have received much interest. If it should turn out that tax cuts on labour can produce major positive labour market effects, this would give politicians a much less controversial instrument than radical changes in the institutional labour market settings.

During the last decade, the effects of taxation on unemployment have been a major research topic in public finance (see Sørensen, 1997, for an overview). The respective

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literature combines different theories of equilibrium unemployment with classical methods of tax incidence analysis. Although rigorous analytical models provide a number of important insights, e.g., the positive impact of labour income tax progression on employment (Hoel, 1990; Lockwood and Manning, 1993; Koskela and Vilmunen, 1996; Goerke, 1997), their contribution to practical policy making remains rather limited. The reason is that theoretical models used to investigate the relationship between taxation and (un)employment are highly stylised in order to keep analytical tractability. Accounting for a more detailed production or consumption structure and the specific institutional features of a country's labour market or tax system makes analytical solutions unfeasible, thus requiring numerical solution methods. For a quantitative assessment of the labour market impacts induced by realistic tax policy shifts, the step from stylised analytical to complex numerical models is inevitable. Such a transition has occurred since the early 1980s in the fields of applied tax and trade policy analysis using computable general equilibrium models in particular (see e.g., Shoven and Whalley, 1984; Ballard et al., 1985). The general equilibrium approach provides a comprehensive framework for studying the effects of policy interference on all markets of an economy, based rigorously on microeconomic theory. The simultaneous explanation of income generation and spending for all economic agents allows us to address both efficiency as well as distributional effects of policy changes. This is why applied general equilibrium (AGE) models have become a standard tool for quantitative policy analysis (for surveys on the use of AGE models in different policy fields see e.g., Shoven and Whalley, 1992; Pereira and Shoven, 1992; Kehoe and Kehoe, 1994; Fehr and Wiegard, 1996, or Weyant, 1999).

To date, however, little work has been done to incorporate unemployment features within the applied general equilibrium framework, although labour market effects of policy interference have become a key interest to decision-makers. A common ad hoc modelling approach is to replace the competitive labour market of a standard general equilibrium setting with a "wage curve" (Blanchflower and Oswald, 1994). The wage curve reflects empirical evidence on the inverse relationship between the level of wages and the rate of unemployment. In such a model, the wage curve, together with labour demand, determines the level of involuntary unemployment (see e.g., Böhringer et al., 2003a,b). The wage curve constitutes a convenient shortcut to incorporate unemployment, but it lacks an explicit microfoundation. This makes it impossible to analyse how specific policy measures affect the wage setting mechanism.

In order to track down the causal chain from policy interference to labour market effects, one must open the "black box" of the wage curve and explicitly model the wage-setting process. Concrete examples include the efficiency–wage model provided by Hutton and Ruocco (1999) for selected EU countries and MIMIC, a detailed model of the Dutch labour market (Bovenberg et al., 2000; Graafland et al., 2001), in which wages are determined by centralised collective bargaining between firms and trade unions. In the MIMIC model, the wage-bargaining equation contains economy-wide averages of the bargaining power, output and labour demand elasticities and, therefore, largely neglects sector-specific characteristics.

Here, we present an AGE modelling approach to incorporate sectoral wage bargaining which is relevant for various OECD countries including Germany, Spain, or Sweden (see