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EMPLOYMENT EFFECTS OF PROGRESSIVE TAXATION IN A UNIONISED ECONOMY

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1 Extended Abstract

The role of taxation on unemployment differentials across countries was one of the issue largely discussed in the mid-eighties following the Bean, Layard and Nickell's (1986), effort to organise a multicountry study. According to them, labour taxation is only partially responsible for the unsatisfactory employment performance of European countries. Their empirical evidence shows a negative but weak relationship between labour taxation and employment. This seems to confirm the labour economists' common view that the tax burden is fully passed onto labour force and consequently it does not affect labour demand and employment, at least in the long-run.

After almost two decades, Daveri and Tabellini (2000), inspired by some data correlations, suggest that the combined effect of monopolistic and decentralised trade union and high labour taxation provides an explanation for the high-unemployment and slow growth of European continental countries. They analyze the effect of a proportional taxation system in a OLG framework where labour supply is exogenous. Starting with the 1987 paper by Malcomson and Sartor, there exists a literature on the relationship between wage determination and tax progressivity which shows that if labour taxation is progressive, following an increase in the sole marginal tax rate, trade unions set wages on the basis of a mark-up substitution effect. This substitution effect takes into account of employment implications of changes in labour taxation. In particular, we refer to the 1993 paper by Lockwood and Manning. However, generally speaking, all this literature presents models that are characterised by an exogeneous labour supply, a static context and a partial equilibrium framework.¹ Therefore, given

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¹Holmlund and Kolm and Calmfors' comment to their paper take into account of endogenous labour supply implications.

wage determination, employment effects are taken as residual from the labour demand.

Recently, a paper by Aronsson et al (1999) presents tax progressivity implications on wage setting in a dynamic context such as a Ramsey model where labour supply is endogenous. They show that within their framework, results derived from static partial equilibrium where labour supply is exogenous, do not hold. That is, an increase in tax progressivity leads to a higher real wage and to a lower employment rate.

This paper aims at analysing the effects of progressive labour taxation on wage determination and employment in a general equilibrium framework where labour supply is endogenous. In particular, it focuses on the employment effects of changes in labour taxation by introducing 4 different types of labour tax parameters (marginal and average rates related to personal income and payroll taxation systems).

Three main questions justify this work.

- 1) Does labour taxation play a role on wage setting and employment?
- 2) Is labour supply important in determining a positive answer to the above question?
- 3) Has an increase (decrease) in tax progressivity different implications on wage setting and employment if achieved varying different tax parameter?

Then an *OLG* model is developed. A *CRRA* households' utility function is specified aiming at verifying whether the intertemporal elasticity of substitution between the two periods consumption is relevant not only for changes in capital income taxation, but also for changes in labour taxation. Further it allows to detect whether implications for wage setting and employment of changes in labour taxation rely upon two model's assumptions such as exogeneity of labour supply and partial equilibrium framework. Finally, the model is generalised enough to compare income and substitution mark-up effect in union's wage determination and to describe all general equilibrium implications on employment of changes in the 4 tax parameters of interest.

Consider, for example, the wage setting and labour taxation relationship and assume a rise in personal labour income taxation. Income effect increase unions' wage claims as described by Daveri and Tabellini. Substitution effect, that does not affect union's behaviour within a proportional taxation system (e.g. Daveri and Tabellini's model), leads to a wage reduction. This is the Lockwood and Manning's result.² However, their model does not allow for a comparison between the two effects since the hypothesis of an exogenous labour supply implies a *pure* substitution effect. If labour supply is endogenous, it is not more possible to talk about a pure substitution effect. If hours of work changes then union income changes to first order even when the average rate is held constant.³ Moreover, trade unions take into account of labour supply parameters since they enter into the utility function. Therefore, changes in

²This result is obtained by assuming a rise in the marginal tax rate holding constant the average rate.

³An increase in the marginal tax rate lowers the number of working hours per employee. This effect reduces wage income despite of average tax rate is unchanged.

union markup are now due to interactions between income and substitution effect. This paper, on the one hand, extends the Daveri and Tabellini paper by introducing a progressive taxation system. On the other hand, it extends all the previous static partial equilibrium analyses such as the Lockwood and Manning one. Further, it extends both of them by endogenising labour supply. It extends the Aronsson et al paper by showing that there are different implications on wage setting and employment of increasing tax progressivity. These different implications depends on the initial degree of tax progressivity and on which tax parameter is allowed to vary to achieve a higher tax progressivity.⁴ Moreover, focusing on the employment effects rather than on the wage setting effect, it points to the importance of changes in payroll tax rates. Finally, it identifies four main transmission mechanisms: the income and substitution mark-up effect, labour supply, interest rate and an “aggregate demand” effect. The interaction of these four mechanisms allows to provide an answer to our initial questions. More specifically, four main conclusions can be draw.

1) A general equilibrium framework introduces two other effects, the interest rate effect and the aggregate demand effect. The interaction of these effects with the standard trade union markup effect and labour supply effect leads to a final impact on employment which may be different from that derived by partial equilibrium analysis. The US case is particularly illuminating in this respect. This suggests that these two effects are more important in countries where inequalities between different categories within the population are bigger.

2) The hypothesis of endogenous labour supply, combined with the presence of an aggregate demand effect, allows for a positive correlation between changes in wages and employment. This correlation is sometimes present in the data and could be hardly explained by the labour demand relationship alone.

3) The role played by the labour supply is crucial in determining the size and the sign of the effect of changes in taxation over wage setting.

4) Employment effects depend on the initial taxation level: the higher the tax level, the stronger the effect is.

Since the theoretical framework can suggest only the signs of the effects of labour taxation, some policy experiments are run over two countries, Italy and the USA, in order to quantify their size. Italy has been chosen since it is characterised by the presence of strong decentralised trade unions and an high unemployment rate, and it is meant to represent all European continental countries. The USA, according to their low-unemployment experience and their tradition of almost competitive labour market symbolizes the Anglo-Saxons group.⁵ According to our policy experiments, run through a calibration

⁴As pointed out by Aronsson et al themselves, they results are consistent only with an increase in the marginal tax rate holding constant the average rate. Aiming at analysing exhaustively all possible implications of changes in tax progressivity on wage and employment, it seems to us important to allow for different comparative statics cases.

⁵The Anglo-Saxon countries and in particular the USA are largely recognised as countries where labour market is almost competitive. However, empirical evidence of the presence of non-competitive forces can be found in papers such as Brunello and Wadhvani (1989) and Holmlund and Zetterberg (1991) where the estimates of the insider weight is quite high for US (0.3).

approach, trade unions are not able to shift tax burden onto firms. That is, trade union markup variations can not help accounting entirely for employment changes. Then, the labour economists' common view is right. However, this is not the end of the story. In particular, a decrease in the average personal income and payroll tax rates has a relevant impact on employment (e.g. 0.43 and 0.83 respectively for Italy; 0.60 and 0.57 respectively for US). These impacts are strongly related to the interaction between the interest rate and the aggregate demand effects. Further, even on a priori grounds in contrast to a linear taxation system, a nonlinear taxation system allows for the possibility that the effects of counterbalancing tax changes do not cancel out and may influence employment equilibrium. In such a case, the employment effect (e.g. 0.52 for Italy and 0.16 for US) is large enough to argue that this kind of increase in tax progressivity may help accounting for a higher equilibrium employment, at least in Italy.

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