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Heterogeneity and Government revenues: Higher taxes at the top?

Nezih Guner [a,b,*], Martin Lopez-Daneri [c], Gustavo Ventura [d]

[a] ICREA-MOVE, Universitat Autonoma de Barcelona, Spain
[b] Barcelona GSE, Spain
[c] University of Southern California, USC-Dornsife INET, USA
[d] Department of Economics, Arizona State University, USA

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ABSTRACT

How effective is a more progressive tax scheme in raising revenues? We answer this question in a life-cycle economy with heterogeneity across households and endogenous labor supply. Our findings show that a tilt of the U.S. income tax schedule towards high earners leads to small increases in revenue. Maximal revenue in the long run is only 6.8% higher than in our benchmark – about 0.8% of initial GDP – while revenues from all sources increase by just about 0.6%. Our conclusions are that policy recommendations of this sort are misguided if the aim is to exclusively raise government revenue.

1. Introduction

> *Tax reform should follow the Buffett rule: If you make more than* 1 *million a year, you should not pay less than* 30% *in taxes, and you shouldn't get special tax subsidies or deductions. On the other hand, if you make under* $250,000 *a year, like* 98% *of American families, your taxes shouldn't go up.*
>
> Barack Obama. State of the Union speech, January 24, 2012

Recently, calls for closing fiscal deficits have been combined with proposals to shift the tax burden and increase marginal tax rates on high earners. The upshot is that *additional* tax revenue should come from those who earn higher incomes. As top earners account for a disproportionate share of tax revenues and face the highest marginal tax rates, such proposals lead to a natural trade-off regarding tax collections. On the one hand, increases in tax collections are potentially non trivial given the revenue generated by high-income households. On the other hand, the implementation of such proposals would increase marginal tax rates precisely where they are at their highest levels and thus, where the individual responses are expected to be larger. Therefore, revenue increases might not materialize.

In this paper, we ask: how much additional revenue can be raised by making income taxes more progressive? How does the answer depend on the underlying labor supply elasticities? How does the answer depend on tax-revenue requirements (i.e. the pre-existing level of average taxes)? To address these questions, our paper develops an equilibrium life-cycle model with individual heterogeneity and endogenous labor supply. Heterogeneity is driven by initial, permanent differences in

* Corresponding author at: Facultat d'Economia, Universitat Autònoma de Barcelona, Edifici B - Campus de Bellaterra, 08193 Bellaterra, Cerdanyola del Vallès, Spain. Tel.: 34 93 581 3068.
E-mail address: nezih.guner@movebarcelona.eu (N. Guner).

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labor productivity and uninsurable productivity shocks over the life cycle. There are different forms of taxes: a non-linear income tax, a flat-rate income tax (to capture state and local taxes), a flat-rate capital income tax (to mimic the corporate income tax) and payroll taxes.[1]

Our model is disciplined to account for aggregate and cross-sectional facts of the U.S. economy. Parameters are selected so the model is consistent with observations on the dynamics of labor earnings, overall earnings inequality, and the relationship between individual income and taxes paid at the Federal level. In particular, in our parameterization the model economy is consistent with the shares of labor income of top earners. To capture the relationship between income and income taxes paid at the federal level, our analysis uses a parametric *tax function* – put forward by Benabou (2002) and used recently by Heathcote et al. (2016) and others – that captures the effective tax rates emerging from the Internal Revenue Service (IRS) micro data. One of these parameters governs the *level* of average tax rates, while the other controls the *curvature*, or progressivity, of the tax function. The model under this tax function accounts well for the distribution of income taxes paid in the U.S. at the Federal level, which is critical for the question addressed in the paper. Tax liabilities are heavily concentrated in the data – more so than the distributions of total income and labor income. In the data, the first and top quintile of the distribution of income account for 0.3% and about 75% of total revenues, respectively, while the richest 1% accounts for about 23%. Our model is consistent with this rather substantial degree of concentration: the bottom quintile accounts for 0.6% of tax liabilities, the top quintile accounts for nearly 77%, while the richest 1% accounts for about 25% of total revenues. In addition, our model implies an elasticity of taxable income for top earners of about 0.4, a value in line with available empirical estimates.

We introduce changes in the shape of the tax function and shift the tax burden towards higher earners, via increases in the parameter that governs the curvature of the tax function. Across steady states, our findings are that income tax revenues at the Federal level are maximized at average and marginal tax rates at the top that are higher than at the benchmark economy. Our results show a revenue-maximizing parameter that implies an effective marginal tax rate of about 36.6% or higher for the richest 5% of households, while the corresponding value in the benchmark economy is of about 21.6%. In other words, the revenue-maximizing marginal tax rates become about 15% points higher for the richest top 5%. However, the increase in tax revenues from income taxes at the Federal level is small. Across steady states, tax revenues from the Federal income tax increase by only about 6.8% relative to the benchmark case. Moreover, as increases in the curvature of the tax function systematically lead to reductions in savings, labor supply and output, tax collections from other sources fall across steady states. At the level of progressivity that maximizes the Federal income tax revenue, output declines by about 12% while the decline in savings is almost 20%. As a result, overall tax collections – including corporate and state income taxes – increase only marginally by about 0.6%. Therefore, the progressivity that would maximize the total tax revenue is *lower*: it would imply a marginal tax rate of 31.1% for the richest 5% of the households. The associated increase in total tax revenue is 1.5%.

We subsequently conduct exercises to investigate the quantitative importance of different aspects of our analysis. We first investigate the extent to which our findings change under a small-open economy assumption. Conclusions in this case are even stronger, as the increase in revenues from increasing progressivity is smaller than in the benchmark case. Our attention then turns to the magnitude of revenue requirements or the overall average tax rate, approximated by the 'level' parameter in the tax function. Our findings show – in contrast to changes in progressivity – that there are substantial revenues available from mild increases in average rates across all households. For instance, keeping the degree of progressivity of the tax schedule intact but increasing the average tax rate around mean income from 8.9% (benchmark value) to about 13%, increases the Federal income tax revenue and total tax revenue by more than 35% and 19%, respectively. Our analysis also show that when the average taxes are higher, there is less room for a government to raise revenue by making taxes more progressive.

Finally, we increase taxes at high incomes only – instead of generically tilting the tax function towards high earners. Our focus is on the revenue-maximizing taxes applied to the richest 5% of households. Our results indicate that a marginal tax rate of about 42% on the richest 5% of households maximizes Federal income tax revenue. This is about 21 percentage points higher than the marginal tax rate on the top 5% of households in the benchmark economy, and about 6 percentage points higher than in the baseline scenario where progressivity is changed via changes of the whole tax function. The resulting increase in Federal tax revenue (8.4%) is only marginally higher than in our benchmark exercises (6.4%). The rise in total tax revenue associated to a 42% marginal tax rate on the top 5% of households is 3.3%, and higher than in the baseline analysis (0.6%).[2]

[1] Our model framework is by now standard in the macroeconomic and public-finance literature, and in different versions has been used to address a host of issues. Among others, Huggett and Ventura (1999); Conesa and Krueger (1999) and Nishiyama and Smetters (2007) used it to quantify the effects of social security reform with heterogenous households. Altig et al. (2001) used a version without uninsurable shocks to study alternative tax reforms. Ventura (1999) quantified the aggregate and distributive effects of a Hall-Rabushka flat tax. Conesa et al. (2009) assessed the desirability of capital-income taxation and non-linear taxation of labor income. Heathcote et al. (2010) studied the implications of rising wage inequality in the United States. See Heathcote et al. (2009) for a survey of papers in the area.

[2] We also evaluate the robustness of our findings to alternative assumptions on labor supply elasticities, when additional revenue is returned to households, and when average and average marginal tax rates are constant. Our conclusions are unchanged, and even stronger than in the baseline scenario in some cases.