



Micro and macro elasticities in a life cycle model with taxes [☆]

Richard Rogerson ^{*}, Johanna Wallenius

Department of Economics, Arizona State University, Tempe, AZ 85287, United States

Received 3 September 2007; accepted 15 May 2008

Available online 11 December 2008

Abstract

We build a life cycle model of labor supply that incorporates changes along both the intensive and extensive margin and use it to assess the consequences of changes in tax and transfer policies on equilibrium hours of work. We find that changes in taxes have large aggregate effects on hours of work. Moreover, we find that there is no inconsistency between this result and the empirical finding of small labor elasticities for prime age workers. In our model, micro and macro elasticities are effectively unrelated. Our model is also consistent with other cross-country patterns.

© 2008 Elsevier Inc. All rights reserved.

JEL classification: E24; J22; J64

Keywords: Labor supply; Life cycle; Taxes

1. Introduction

Time devoted to market work in continental Europe is currently only about 70% of the US level. Recent work by Prescott [26], Rogerson [29] and Ohanian et al. [24] argues that differences in tax and transfer policies can account for a large share of this difference. Following Lucas and Rapping [17], these papers all use a stand-in household model that abstracts from the distinction between employment and hours per employee, and assume that the stand-in household has a

[☆] We thank Ed Prescott, Martin Evans, Nobu Kiyotaki, Fernando Alvarez, Robert Hall, Manuel Arrellano, Robert Shimer and two anonymous referees for useful comments, as well as many seminar and conference participants. Rogerson thanks the NSF for financial support, and Wallenius thanks the Yrjo Jahnsson Foundation for financial support.

^{*} Corresponding author. Fax: +1 480 965 0748.

E-mail address: richard.rogerson@asu.edu (R. Rogerson).

relatively high labor supply elasticity. One critique of these exercises is that the assumed labor supply elasticity of the stand-in household is much larger than that implied by most estimates based on micro data. Specifically, if the labor supply elasticity of the stand-in household was instead set to standard estimates based on micro data, then it is no longer the case that taxes account for a large share of differences in market work between the US and continental Europe.¹ In this paper we argue that this critique is misplaced.

To make this point, we develop an overlapping generations model that replicates the salient features of life cycle labor supply, and then use this model to analyze how tax and transfer policies affect hours of work in the steady state. In this framework we can carry out both standard micro data estimation exercises based on life cycle variation for prime aged workers, as well as standard macro estimation based on variation in aggregates across steady states. Our main findings are twofold. First, macro elasticities are virtually unrelated to micro elasticities, and second, macro elasticities are large. In particular, for micro elasticities that vary by a factor 25, ranging from .05 to more than 1.25, the corresponding macro elasticities are in the range of 2.25–3.0.

Our model builds on the earlier work of Prescott et al. [27] on lifetime labor supply by embedding it into a life cycle setting. Like them, we focus on the importance of nonlinearities in the mapping from time at work to labor services provided. This feature gives rise to equilibrium allocations in which workers choose time allocations in which both the extensive and intensive margins are operative, i.e., a worker chooses both what fraction of his or her life to devote to employment, and what fraction of his or her period time endowment to devote to work while employed. By embedding this analysis into a life cycle model we are able to generate standard life cycle profiles for hours of work—including the fact that hours drop discontinuously to zero at older ages. This allows us to reproduce micro estimates based on life cycle variation for prime aged workers.

In addition to reconciling micro and macro tax elasticities, our life cycle model delivers two additional predictions relative to earlier analyses based on stand-in household models, both of which are also corroborated by the cross-country data. First, our model predicts that increases in the size of tax and transfer policies imply less time devoted to work both in terms of employment to population ratios and hours of work per person in employment. Second, our model implies that differences in employment to population ratios are dominated by differences among young and old individuals.

The labor supply problem in our model is very similar to the one studied by French [6]. He considers an individual decision problem of lifetime labor supply in the presence of nonconvexities. A key implication of his model is that labor supply responses are much smaller for prime aged individuals than they are for older individuals, since the latter group will include the extensive margin associated with retirement. While French analyzes the decision problem of a given individual, we embed this problem into a general equilibrium model and focus on the relationship between individual preference parameters and aggregate responses.

Our results are also related to those in Chang and Kim [3]. Similar to us, they find that in their model, micro and macro elasticities need not be the same, and that macro elasticities can be significantly larger. While we view our study as complementary to theirs, there are several important differences that distinguish the two studies. First, we study a life cycle model and hence can explicitly connect to micro estimates based on life cycle variation. Second, our analysis allows for variation along both the intensive and extensive margin. Not only does this allow one

¹ Alesina et al. [2] is a recent example where this critique is put forward.

متن کامل مقاله

دریافت فوری ←

ISIArticles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات