

Taxes and the global allocation of capital[☆]

David Backus^{a,*}, Espen Henriksen^b, Kjetil Storesletten^b

^a*Stern School of Business, New York University and NBER, USA*

^b*Department of Economics, University of Oslo, Norway*

Received 11 May 2007; received in revised form 20 November 2007; accepted 20 November 2007

Available online 8 December 2007

Abstract

Despite enormous growth in international capital flows, capital-output ratios continue to exhibit substantial heterogeneity across countries. We explore the possibility that taxes, particularly corporate taxes, are a significant source of this heterogeneity. The evidence is mixed. Tax rates computed from tax revenue are inversely correlated with capital-output ratios, as we might expect. However, effective tax rates constructed from official tax rates show little relation to capital—or to revenue-based tax measures. The stark difference between these two tax measures remains an open issue.

© 2008 Published by Elsevier B.V.

JEL classification: E22; F21; H25; H32

Keywords: Capital; Taxes; Capital-output ratio; International capital flows

1. Introduction

With net flows of financial capital into the US running at about 7% of GDP—and similar flows out of Germany and Japan—it is increasingly difficult to think about the allocation of physical capital without considering its international dimension. We may not live in a world of frictionless international capital markets, but international markets nevertheless appear to have a significant impact on local conditions. Despite this, there are substantial differences in the capital intensities of developed countries. By our calculations, capital-output ratios in 2004 were about 2.5 in the US, 3.1 in France, 3.9 in Japan, and 1.8 in Ireland. These differences in capital-output ratios suggest similar differences in marginal products. If the US and Japan produced output with the same Cobb–Douglas production function, with a capital share of one-third, the implied marginal product of capital would be about 5% higher in the US. The question is why.

[☆] This paper was prepared for the April 2007 meeting of the Carnegie-Rochester Conference on Public Policy, “Advances in Dynamic Public Finance.” We thank the conference participants, particularly our discussant, Peter Rupert, and the organizer, Stanley Zin. We also thank Andrew Abel, Robin Boadway, Antonio Ciccone, Jack Mintz, Tomasz Piskorski, Fabrizio Perri, and James Poterba for help at various stages of this project. Storesletten — a fellow of CEPR — thanks the Norwegian Research Council for financial support.

*Corresponding author. Tel.: +1 212 998 0873; fax: +1 212 995 4212.

E-mail addresses: david.backus@nyu.edu (D. Backus), espen.henriksen@econ.uio.no (E. Henriksen), kjetil.storesletten@econ.uio.no (K. Storesletten).

While some ask why capital flows out of Japan and into the US are so large, we ask why they are not large enough to eliminate a conjectured 5% rate of return differential.

There are many possible sources of cross-country differences in capital-output ratios, but we focus on one: taxes, particularly corporate taxes. Could differences in tax rates account for some of the heterogeneity we see in capital-output ratios? Certainly corporate tax rates differ substantially across countries, and these differences can, in principle, generate substantial variation in capital-output ratios. The US, for example, now has a relatively high corporate tax rate, which might offset the advantages to an investor of its apparent high marginal product of capital.

We examine data on capital and taxes in a panel of OECD countries over the last 25 years to see whether the two variables are related in a statistical sense. The answer? It depends how you measure tax rates. For that reason, much of our effort is devoted to measurement issues.

We proceed as follows. In Section 2, we describe the relation between the capital-output ratio and the tax rate on capital in a frictionless theoretical example. The example provides a concrete illustration of how high taxes on capital might be associated with low capital-output ratios. In Section 3, we look at capital data, summarizing the behavior of capital-output ratios across countries and over time. Although capital-output ratios have been stable in most countries, the data exhibit substantial variation both over time and across countries. Measurement issues include investment price deflators and depreciation schedules. In Section 4, we look at tax data. We use two sources: revenue collected by various taxes, including taxes on corporate income, and effective tax rates constructed from features of the tax code. Tax systems are enormously complex, so each of these approaches raises substantive measurement issues. With effective tax rates, we show that there has been a dramatic convergence over the last decade or so, as well as a decline in average tax rates. Tax revenue, however, has changed much less as a fraction of GDP. The difference between these two measures is a central issue in interpreting the evidence. In Section 5, we look at the relation between capital-output ratios and tax rates. For measures of tax rates based on corporate tax law, the correlation with the capital-output ratio is small or positive. However, for measures based on tax revenue the correlation is clearly negative, with countries that collect more tax revenue having, on average, less capital per unit of output. However, even revenue-based taxes explain only a small fraction of the observed variance in capital-output ratios. A more formal analysis based on panel regressions leads to similar conclusions. In the final two sections, we explore a range of related issues, including mechanisms that might lead to correlations between capital and taxes for reasons other than the direct impact of tax rates on investment decisions.

We are left with two outstanding issues: Why effective and revenue-based tax rates are so different, and why even revenue-based measures explain such a small fraction of international differences in capital-output ratios.

2. The allocation of capital in theory

An example shows how international capital mobility might interact with taxes in producing an allocation of capital across countries. The idea is that taxes on capital reduce its use, leading countries with high taxes (suitably defined) to use less capital than those with low taxes. We emphasize taxes levied on businesses for reasons that should become apparent later on.

Consider a world with one good and many countries across which physical capital can be shifted costlessly. In each country i , a representative firm produces output y_{it} at date t using capital k_{it} and labor n_{it} according to the same production function f :

$$y_{it} = f(k_{it}, z_{it}n_{it}),$$

where f is homogeneous of degree one and z_{it} is exogenous labor-augmenting productivity. Firms purchase capital k_{it} in the previous period at price p_{t-1} , the same across countries. Capital and labor generate output y_{it} and next-period capital $(1 - \delta)k_{it}$, where δ is the depreciation rate. This “gross output” has price p_t . The price of labor in country i is $p_t w_{it}$ per unit, so that w_{it} is the wage in units of the date- t good. The interest rate is $1 + r_{t-1} = p_{t-1}/p_t$.

Without taxes, the profit of a competitive firm in country i is

$$\text{Profit} = p_t[f(k_{it}, z_{it}n_{it}) + (1 - \delta)k_{it} - w_{it}n_{it}] - p_{t-1}k_{it}.$$

Download English Version:

<https://daneshyari.com/en/article/966717>

Download Persian Version:

<https://daneshyari.com/article/966717>

[Daneshyari.com](https://daneshyari.com)