

# Business cycles and investment in human capital: international evidence on higher education\*

Plutarchos Sakellaris

University of Maryland

Board of Governors of the Federal Reserve System

and

Antonio Spilimbergo

International Monetary Fund, 700 19th Street, NW, Washington, DC 20431

## Abstract

We study the effect of economic fluctuations on investment in higher education for a wide range of countries. Our main focus is on foreign students who come to the United States to attend universities. There is a strong relation between enrollment and the business cycle in the sending country. The cyclical pattern of enrollment is sharply different for two groups of countries. For OECD countries enrollment is countercyclical, whereas for non-OECD countries it is procyclical. At business cycle frequencies, opportunity cost plays a dominant role in explaining enrollment from OECD countries, whereas ability to pay and credit constraints seem more prevalent at non-OECD countries. The results are confirmed using data on domestic enrollment from national sources.

---

\* *Correspondence to:* Antonio Spilimbergo, Research Department, IMF, 700 19th St., NW, Washington, DC 20431 (email: [aspilimbergo@imf.org](mailto:aspilimbergo@imf.org)). This paper was presented at the Carnegie-Rochester Conference Series on Public Policy, and was written while the first author was visiting the Industrial Output Section of the Board of Governors of the Federal Reserve System. We would like to thank Antonio Ciccone, Alexander Hoffmaister, Norman Morin, and seminar participants at the IMF, the World Bank, the University of Maryland, and the University of Rochester for helpful discussions and Ivan Guerra for research assistance. The views expressed here do not represent those of the staff of the Federal Reserve System, the IMF, or their Boards.

# 1 Introduction

The cyclical properties of investment in human capital had been left largely unexplored until recently. Some new work, however, stresses the importance of examining these properties. Dellas and Sakellaris (1995) argue that in the United States there is significant substitution between education and competing labor activities during the business cycle. They provide evidence that the propensity of 18- to 22-year-old high school graduates to enroll in college is significantly countercyclical.

The direction and size of the cyclical component to enrollment can be described as the confluence of two counteracting factors: the opportunity cost, and the ability to pay, both of which move in a procyclical manner. The Dellas and Sakellaris findings for the United States point to the conclusion that at business cycle frequencies the opportunity cost element of the enrollment decision is more important than the ability to pay element. Credit constraints, that is, are relatively less important for the cyclical properties of investment in higher education in the United States. In Section 2, we review more thoroughly the relevant empirical literature.

Can one treat these U.S. results as general and representative of other countries too? As countries differ in labor-market institutions, educational institutions and policies, and financial development, it seems important to caution against such a generalization. There should be no presumption that the relative importance of opportunity cost and ability to pay (or their cyclical components) should be the same across countries.

This paper studies the effect of the business cycle on investment in higher education for a wide range of countries. To achieve this goal it is imperative to have consistent, and long, time series data for a diverse set of countries. We have addressed these concerns by assembling data on a measure of educational investment that come from a single collecting organization. The data definitions and quality are consistent across a wide range of countries. We focus on foreign students who come to attend universities in the United States (for undergraduate or graduate work). These data are published annually by the Institute for International Education and are collected as a census of U.S. higher education institutions. Further details on this and other data used in this paper are provided in Section 3.<sup>1</sup>

Our results, contained in Section 4, establish a strong relation between U.S. enrollment and the business cycle in the sending country in 1961 to

---

<sup>1</sup>Ideally, we would have total enrollment data in higher education regardless of whether the studies took place at home or abroad. In addition, we would like to have variables that pertain to the rate of return on higher education such as education wage premium, or the quality of education. Unfortunately, such data are not consistent, or not available for many countries.

متن کامل مقاله

دریافت فوری ←

**ISI**Articles

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