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A note on capital mobility in Greece

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Abstract

Pelagidis and Mastroyiannis [Pelagidis, T., & Mastroyiannis, T. (2003). The saving–investment correlation in Greece, 1960–1997: Implications for capital mobility. *Journal of Policy Modeling*] using the cointegration methodology proposed by Jansen and Schulze [Jansen, W.J., & Schulze, G.G. (1993). *Theory-based measurement for the saving–investment correlation with an application to Norway*. Discussion paper 205. Universitat Kostanz] conclude that the hypothesis of perfect capital mobility cannot be confirmed in the case of Greece. This note argue that this result is not consistent with the methodology of Johansen which suggests that the Feldestein-Horioka hypothesis should be accepted contrary to what the paper of Pelagidis and Mastroyiannis claims.

JEL classification: F30; F32

Keywords: International capital mobility; Domestic savings

1. Introduction

In a recent article of this journal Pelagidis and Mastroyiannis (2003) (henceforth PM) investigated the Feldstein and Horioka (1980) (henceforth FH) hypothesis of perfect capital mobility in Greece based on the cointegration methodology of Jansen and Schulze (1993). They concluded that domestic investments and national savings are tied together by a long run relationship prompting the authors to argue that capital mobility was not high in Greece. In this note, I argue that the PM result is related to the methodology used to test for cointegration. To this end, I use Johansen's

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maximum likelihood approach (Johansen, 1988, 1991) that is superior to old fashioned cointegration tests like Engle and Granger (1988), Jansen and Schulze (1993) and others in the case of $I(1)$ regressors. It is well known that these tests do not take into account the fact that residuals *are not exact but generated* leading frequently the researcher to misguided conclusions. Going beyond the paper of PM, to examine the stationarity properties of the series involved, I use the augmented Dickey Fuller test (ADF), the ADF-GLS unit root test of Elliot, Rothenberg, and Stock (1996) as well as the KPSS test. The ADF-GLS unit root test has the best overall performance in terms of small size-sample size and power with respect the ADF test. The KPSS stationarity test proposed by Kwiatkowski, Phillips, Schmidt, and Shin (1992) is a powerful test which tests the null of stationarity against the alternative of a unit root. Finally, I use the Perron (1997) unit root test, which allows for the presence of a structural break in our time series. The presence of a structural break biases the results in favour of finding a unit root.

2. The model, the method and the empirical results

To test the FH hypothesis we need to estimate the following equation

$$\mathrm{IR}_t = \alpha + \beta \mathrm{SR}_t + e_t \quad t = 1, 2, \ldots, T. \tag{1}$$

where IR_t denotes the ratio of domestic investment to gross domestic product (GDP), SR_t the ratio of national savings to GDP and e_t is the usual statistical noise. α and β are parameters to estimate. A value of β close to one is an indication that the FH of perfect capital mobility should be rejected, while a value of β close to zero gives support to the contention that free capital mobility should be accepted.

Argimón and Roldán (1994) and Ho (2002) argue that if both IR_t and SR_t are integrated of order one, then the proper way to test for the empirical validity of FH hypothesis is to test if Eq. (1) is a cointegrating relation. Evidence in favour of cointegration or weak evidence in favour of cointegration suggests that the hypothesis of perfect capital mobility does not hold.

Before we test for cointegration, we need to explore the stationarity properties of the series of interest. To this end, we use the ADF unit root test of Dickey and Fuller (1981), the ADF-GLS test of Elliot et al. (1996) as well as the KPSS stationarity test of Kwiatkowski et al. (1992). The ADF-GLS unit root test resembles closely the ADF test as it applies GLS detrending before the (detrended) series is tested via the Dickey–Fuller regression. Compared with the ADF test, the ADF-GLS test has best performance in terms of small-sample size and power. Furthermore, since the ADF has lower power in rejecting the null of a unit root, we implement a powerful test (the KPSS test) in which the null of stationarity is tested against the alternative of a unit root. Our data set covers the period 1960–2000 and is taken from European Union's AMECO data base (Annual Macro Economic Data Base DG2). Table 1 presents the results of ADF, ADF-GLS and KPSS tests. All tests indicate that IR and SR contain a unit root in their levels form. ADF and KPSS in first differences reveal that for IR the null hypothesis is rejected at the 1% significance level while for SR at the 10% statistical level. Since, both ADF and KPSS tests yield similar results we can conclude to a certain degree of safety that both series are integrated of order one.

Next, to ensure that both series are realizations of non-stationary process, we employ the Perron (1997) ADF unit root test. The Perron-ADF unit root test allows for the presence of a structural break. It is well know that the presence of a structural break affects the stationarity properties of a series leading to the wrong conclusion that the investigated series contains a unit root. Other things