



Long-horizon regression tests of the theory of purchasing power parity

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Abstract

In this article we test the purchasing power parity (PPP) hypothesis during the recent floating exchange rate period, using quarterly data for 21 OECD countries. In doing so, we use the long-horizon regression approach developed by Fisher and Seater [American Economic Review 83 (1993) 402] and consider 60 bilateral intercountry relations. We investigate the power of the long-horizon regression tests, using the inverse power function of Andrews [Econometrica 57 (1989) 1059], and provide weak evidence in favor of PPP.

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1. Introduction

The theory of purchasing power parity (PPP) has attracted a great deal of attention and has been explored extensively in the recent literature using recent advances in the field of applied econometrics (that pay explicit attention to the integration and cointegration properties of the variables). Based on the law of one price, PPP asserts that relative goods prices are not affected by exchange rates – or, equivalently, that exchange rate changes will be proportional to relative inflation. The relationship is important not only because it has been a cornerstone of exchange rate models in

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international economics, but also because of its policy implications; it provides a benchmark exchange rate and hence has some practical appeal for policymakers and exchange rate arbitrageurs.

Empirical studies generally fail to find support for purchasing power parity, especially during the recent floating exchange rate period. In fact, the empirical consensus is that PPP does not hold over this period (see, for example, Adler and Lehman, 1983; Mark, 1990; Patel, 1990; Grilli and Kaminsky, 1991; Flynn and Boucher, 1993; Serletis, 1994; Serletis and Zimonopoulos, 1997; Coe and Serletis, 2002). But there are also studies covering different groups of countries as well as studies covering periods of long duration or country pairs experiencing large differentials in price movements that report evidence of mean reversion towards PPP (see, for example, Frenkel, 1980; Diebold et al., 1991; Glen, 1992; Perron and Vogelsang, 1992; Phylaktis and Kassimatis, 1994; Lothian and Taylor, 1996). Also, studies using high-frequency (monthly) data over the recent floating exchange rate period report significant evidence favorable to purchasing power parity (see, for example, Pippenger, 1993; Cheung and Lai, 1993; Kugler and Lenz, 1993).¹

Although purchasing power parity has been studied extensively, recently Fisher and Seater (1993) contribute to the literature on testing key classical macroeconomic hypotheses (such as, for example, the neutrality of money proposition, the Fisher relation, and a vertical long-run Phillips curve) by developing tests (using recent advances in the theory of nonstationary regressors) based on coefficient restrictions in bivariate vector autoregressive models. They show that meaningful tests can only be constructed if the relevant variables satisfy certain nonstationarity conditions and that much of the older literature violates these requirements, and hence has to be disregarded.

In this paper we adopt the long-horizon regression approach of Fisher and Seater (1993) for studying the purchasing power parity proposition. Long-horizon regressions have received a lot of attention in the recent economics and finance literature, because studies based on long-horizon variables seem to find significant results where short-horizon regressions commonly used in economics and finance have failed.

We use quarterly data, over the period from 1973:1 to 1998:4, for 21 OECD countries and pay particular attention to the integration properties of the variables, since meaningful purchasing power parity tests require that both the nominal exchange rate and the relative price satisfy certain nonstationarity conditions. The countries involved are Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Japan, the Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, the United Kingdom, and the United States.

Our analysis is organized as follows. Section 2 presents a brief summary of the purchasing power parity hypothesis and reviews earlier empirical tests of the hypothesis. Section 3 provides a summary of the long-horizon regression approach devel-

¹ There are also recent studies that use panel methods, such as, for example, Koedijk et al. (1998) and Papell and Theodoridis (1998), as well as studies that consider the effect of transaction costs and nonlinear adjustments, such as, for example, Michael et al. (1997), that report evidence favorable to PPP.

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