The purchasing power parity (ppp) view of the determination of the exchange rate has a long history in the international economics literature. Recently it has appeared in various guises in the modern asset view of exchange rate determination (usually as a long run anchor for the exchange rate) and it is also ever popular in the financial press, where it is used to make judgements on whether a currency is overvalued or undervalued. Perhaps ppp’s simplicity is one of its most appealing attributes: the exchange rate is equal to the ratio of some domestic to foreign price level. However, evidence from the recent experience with floating exchange rates has tended to question the theory: exchange rates appear to behave in a manner more akin to asset prices than commodity prices. The bulk of the empirical evidence on ppp from the recent float may be nicely summarised by a quote from Frenkel (1981): ‘one of the striking facts concerning the relationship between prices and exchange rates during the 1970s has been the dismal performance of the ppp doctrine.’ Frenkel’s statement is representative of other researchers’ findings on ppp (the exception is Hakkio’s (1984) paper, which is discussed below).

One interesting feature, however, of the extant empirical studies on ppp is that researchers all use relatively short term, high frequency, data. But most proponents of ppp argue that it is a long run phenomenon: exchange rates have a tendency to follow a ppp path once account is taken of factors such as relative interest rate differentials, foreign exchange market intervention and speculation. At least that is the view taken by Cassel, who is generally acknowledged as the founding father of the modern day version of ppp (see Officer (1976) for a discussion). To the extent that ppp is a long run concept, tests which use monthly/quarterly data may well miss the point since such data will be inherently noisy and fail to capture the underlying ppp relationship. It is the purpose in this paper to test the hypothesis using annual data. One obvious objection to using such data is that it unduly constrains the available degrees of freedom and therefore relatively inefficient estimates will result. We would, however, counter such an argument in two ways. First, there are now in fact sufficient observations from the recent floating exchange rate

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experience to allow estimation of the simple ppp regression equations that are prevalent in the literature. Secondly, and more importantly, the nature of the ppp relationship is such that the efficiency of single country estimates may be improved by pooling the data from a number of countries. This is essentially the approach favoured in this paper.

The outline of the rest of the paper is as follows. In section 1 the ppp hypothesis is outlined and a summary of some empirical evidence presented. In section 2 we present some econometric evidence using annual data. As we shall see, such evidence is generally supportive of the ppp hypothesis, particularly when a wholesale measure of the price index is utilised.

1 THE PURCHASING POWER PARITY DOCTRINE

The ppp hypothesis may be expressed in either its absolute or relative forms. Thus absolute ppp may be expressed as

\[ s_t = a + b(p/p^*)_t + \nu_t \]  

(1)

where \( s_t \) is the exchange rate (defined as the home currency price of a unit of foreign currency), \( (p/p^*)_t \) is the ratio of a domestic to a foreign price index, \( \nu_t \) is an error term and lower case letters denote natural logarithms. The relative version of the hypothesis may be expressed as

\[ \Delta s_t = a + b\Delta (p/p^*)_t + \mu_t \]  

(2)

where \( \Delta \) is the first difference operator and \( \mu_t \) is an error term. In econometrically implementing equations (1) and (2) it is expected that \( b \) should equal one and in (2) the constant should equal zero. Additionally a researcher may hypothesise \( a = 0 \) in equation (1) if he believes that in equilibrium the real exchange rate equals zero; such an hypothesis is not, however, relevant to our discussion here. Finally the error terms in equations (1) and (2) should be white noise processes.\(^1\)

Equations (1) and (2) have been estimated by a number of researchers for the 1970s/1980s experience with floating exchange rates. Here we concentrate on perhaps three of the most notable contributions, by Krugman (1978), Frenkel (1981) and Hakkio (1984). Krugman concentrates on estimating equation (1) for a variety of countries, over the period July 1973–December 1976, and in Table 1 we report two representative equations for the UK and Switzerland - wholesale prices are used for \( p \). In both cases the \( b \) coefficient differs from uni-

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\(^1\) One problem with our specification of (1) is that it should strictly speaking only be tested using price levels. However, given the difficulty in obtaining data on price levels on a multi-country basis we use, in common with other researchers, price indices. It should be noted that this introduces a specification error.