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What can US city price data tell us about purchasing power parity?

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Abstract

We study the dispersion of absolute price levels for US cities since 1918. By absolute price levels, we mean price indices that measure the cost of a given consumption basket at each point in time. We find strong evidence that city price levels converge over time and that the dispersion of price levels is lower for US cities than between OECD countries. We argue that price level convergence for US cities will produce bilateral real exchange rate nonstationarity. In this case, however, nonstationarity is not evidence against Purchasing Power Parity (PPP), rather it is the consequence of improved market integration.

JEL classification: F31; F41

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1. Introduction

In recent years, researchers have explored various aspects of real exchange rate behavior with city price data. The literature in this area begins with Engel and Rogers's (1996) influential work where they compare relative price variability within

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and across the US and Canada using disaggregated city price indices[1]. More recently, Culver and Papell (University of Houston, TX, unpublished) (1999) and Cachetti et al. (2001) tested aggregate versions of Purchasing Power Parity (PPP) with city data. In this paper, we extend the city literature to consider the long run behavior of absolute price levels. By absolute price levels, we mean price indices that measure the cost of a given consumption basket at each point in time. Our first goal is to document the behavior of absolute price levels for US cities since 1918. Our second goal is to explain why researchers find it difficult to reject real exchange rate nonstationarity for city real exchange rates.

We introduce our data in Section 2. In Section 3, we examine the dispersion of US city price levels. We have two findings. First, we show that the dispersion of city price levels has fallen by 40% since the 1920s. In other words, US city price levels are converging over time. Second, we show that price level dispersion is lower for cities within the US than across OECD economies. We argue that these findings are consistent with beliefs that markets are more closely integrated within countries and that market integration for US cities has increased over time.

In Section 4, we discuss recent tests of city bilateral real exchange rate stationarity in the light of city price level convergence. According to previous research, difficulties in rejecting bilateral real exchange rate nonstationarity for US city data are due to slow speeds of adjustment. We argue in contrast that nonstationarity may be the result of the convergence of city price levels. When city price levels are converging, bilateral city real exchange rates cannot return to a fixed mean. Price level convergence thus implies bilateral real exchange rate nonstationarity. Clearly nonstationarity in this case is not evidence against PPP. On the contrary, it supports versions of PPP that allow for reductions in transport costs and improved market integration. We conclude in Section 5.

2. The city price data

The BLS city price indices refer to standard metropolitan areas (SMAs) or Consolidated Metropolitan Areas (CSMAs)[2]. The indices are ideal for studying intranational real exchange rate behavior because they cover identical goods and services at each point in time and they are available for long spans[3].

We have CPI indices for 19 cities from 1918. They are New York, Philadelphia, Boston, Pittsburgh, Chicago, Detroit, St Louis, Cleveland, Minneapolis, Cincinnati, Kansas City, Washington DC, Baltimore, Houston, Atlanta, San Francisco, Los Ang-

[1] Recent work in this area includes Engel and Rogers (2001) and Parsley and Wei (2001). The PPP debates of the 1970s and early 1980s also generated a city price literature; see McCloskey and Zecher (1976) and Gandolfi and Lothian unpublished, (1980). The early work differs from current research in that it focuses on whether PPP holds in the short run.

[2] For early accounts of the BLS indices, see Douglas (1930) and BLS bulletins 77 and 156.

[3] There are small differences in consumption baskets across cities.