PANEL UNIT ROOT AND COINTEGRATION TEST OF PURCHASING POWER PARITY: A STUDY OF SELECTED AFRICAN COUNTRIE

BY

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ABSTRACT

The Purpose of this research is to test the validity of the purchasing power parity (PPP) theory in Africa. The theory is tested through the use of panel unit root and cointegration techniques. Based on the annual data covering the period of 1980-2012, panel unit root tests of Levin, Lin and Chu (2002) and Im, Pesaran and Shin (2003) are conducted on the real exchange rate of the studied countries. The results based on the unit root tests failed to validate the theory in its strong form. However, based on the Pedroni (1995, 1996) cointegration test of price indices and exchange rates, the results appeared remarkable in favor of long term applicability of PPP as a cointegration concept. Further test on the long run relationship revealed that domestic prices played a vital role in determining the equilibrium exchange rates (hence PPP) as far as this data is concern. As concerns major policy, based on this study, these countries could use the PPP theory to determine the equilibrium exchange rates. Even though, the strong form of PPP theory could not be attested given the unit root approach employed, the empirical results emphasized that there is weak evidence about the long run PPP hypothesis in these countries.

Keywords: PPP, Real exchange Rate, Nominal exchange rate, Domestic Consumer Price Index (CPI), foreign Consumer Price Index (CPI*), Panel Unit Root and Panel Cointegration.

ABSTRAK

Tujuan kajian ini adalah untuk menguji kesahan teori kuasa beli pengguna (PPP)di Afrika. Teori ini diuji melalui penggunaan teknik data panel punca kuasa dua dan kointegrasi.Berdasarkan data tahunan ynag meliputi 1980-2012, ujian Levin, Lin dan Chu (2002) dan Im, Pesaran dan Shin (2003) panel punca kuasa dua dijlanakan keatas pertukaran asing benar di Negara yang dikaji. Keputusan berdasarkan ujian punca kuasa dua gagal mengesahkan teori tersebut dalam bentuknya yang kuat. Tetapi, berdasarkan Pedroni (1995, 1996)ujian kointegrasi index harga dan kadar pertukaran, keputusan-keputusan tersebut menjadi luar biasa terhadap aplikasi PPP jangka masa panjang sebagai konsep kointegrasi. Ujian tambahan ke atas hubungan jangka panjang mendedahkan bahawa harga domestic telah memainkan peranan penting dalam menerangkan keseimbangan kadar tukaran (dan PPP) sejauh mana data ini diambil kira. Perhatian terhadap polisi penting, berdasarkan kajian ini, Negara-negara ini boleh menggunakan teori PPP untuk menentukan keseimbangan tukaran asing. Walaupun, bentuk teori PPP yang kuat tidak boleh disahkan apabila pendekatan punca kuasa dua digunakan, keputusan empirical menekankan terdapat bukti lemah terhadap hipotesis PPP jangka panjang di negara-negara ini.

Katakunci: PPP, Kadar tukaran asing benar, Kadar tukaran semasa, Indeks Harga Pengguna Domestik (CPI), Indeks Harga Pengguna Asing (CPI*), Panel Punca Kuasa Dua dan Kointegrasi.

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LIST OF ABBREVIATIONS

ADF	Augmented Dickey-Fuller
CPI	Consumer Price Index
CPI*	Foreign Consumer Price Index
EU	European Union
FMOLS	Fully Modified Ordinary Least Square
IPS	Im, Pesaran and Shin (2003)
IMF	International Monetary Fund
KPSS	Kwiatkoswki, Phillips, Schmidt & Shin test (1992)
LDCs	Less developed Countries
LLC	Levin, Lin and Chu (2002)
LM	Lagrange Multiplier
LOP	Law of One Price
MENA	Middle East and North African Countries
NER	Nominal Exchange Rate
OECD	Organization for Economic Cooperation and Development
PPP	Purchasing Power Parity
PPI	Producer Price Index
RER	Real Exchange Rate
SPM	Sequential Panel-Selection
SURKSS	Seemingly Unrelated Regressions Kapetanios-Shin-Snell(2009)
WPI	Whole Sales Price Index

CHAPTER 1

INTRODUCTION

1.1 Introduction

The theory of purchasing power parity as one of the oldest topics in international economics plays a central role in macroeconomic models in an open economy. It constitutes one of the oldest and the most practical relationships in the theory of exchange rates (the relationship between relative prices and exchange rate). Earlier versions of the theory can be traced back to the works of scholars dating to 15^{th} up until 16^{th} centuries. Though, the intellectual presentation of the theory began as far back as early 1800s, with the writings of Wheatly and Ricardo.

The series of debates on the collapse of world financial system and the necessary ways to restore it marked the modern origin of the theory of purchasing power parity (PPP). Before 1st World War, exchange rates between two countries were simply represented by their relative gold values. However, maintaining the relative gold standard after the end of the war was faced with lot of problems. Countries were highly concern about the possibilities of currency devaluation that could be easily adopted all in an effort to gain seignorage revenues. This let to abandoning of the gold standard (Rogoff 1996).

In a series of influential articles, Cassel (1921, 1922) advocated that PPP should be used to set gold parities. Even though, the theory of PPP had been given earlier discussion by the so-called classical economist, Cassel was really the first to digest and present it as a practical empirical theory.

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