Price Parities for Components of
 Gross Domestic Product
 in 35 Developing Countries: 1985

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ABSTRACT

This brief note presents detailed price information about a large group of poor countries. The price estimates, covering components of GDP at various levels of disaggregation, are derived from the 1985 benchmark price survey of the United Nations International Comparison Programme. The prices are expressed as price parities (that is, as the ratio of the domestic price of the component to the United States price) and also in relative-price and price-level form. A number of illustrations are given of how the price information can be used to illuminate countries' price structures.

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I A Presentation of Price Parities

This note provides a table designed to illuminate the price structures of low-income countries around the world. The table contains detailed price parities for as many as 38 components of Gross Domestic Product (GDP) for each of 35 developing countries in 1985. The price parities are estimates derived from the United Nations International Comparison Programme (ICP) Phase 5 price surveys[1] that in all covered 64 countries.

The price parity information about each country is spelled out in three columns of the table. The first gives the price parities and the second and third provide perspectives on what the magnitude of the price parity implies about the country's price structure.

Column (1) Component price parity The price parity is the ratio of the domestic price of a unit of the component (expressed in domestic currency units) to the dollar price of a unit of the component in the United States.

Column (2) Relative price parity The relative price parity is the ratio of the component price parity to the overall purchasing power parity (PPP) of the country's currency relative to the United States dollar. A number greater than 100.0 here means that the price of the component in the country relative to all other components is greater than the corresponding United States relative price; a number less than 1.00 means that the relative price of the component is less than the corresponding United States relative price.

Column (3) Component price level The information provided by the component price level is similar to what is learned from the relative price parity, but with a different emphasis. The price parity here is divided by the country's foreign exchange rate to show the cost of the component as viewed by someone whose assets are in United States dollars (or indirectly, in any other country's currency).

At the bottom of each country's columns are five numbers describing the overall situation of the country: (i) the country's PPP; (ii) its exchange

rate; (iii) its price level (defined as the ratio of its PPP to its exchange rate); (iv) its 1985 GDP per capita, expressed in 1985 international dollars; and (v) the ratio of its 1985 GDP per capita to that of the United States.

II A Commentary on the Patterns Discernable in the Price Parity Table

The price parities can be no more than beginning inputs in analyzing countries' price structures because they are expressed in terms of the countries' domestic currency units per US dollar, and these are not directly comparable across countries. To make them comparable, they must be expressed relative to an appropriate variable that is in the same units. The two obvious denominators for this purpose are the countries' overall PPPs and their exchange rates.

A **Price Parities Divided by PPPs: Relative Prices**

Three examples involving relative prices immediately come to mind. They illustrate but by no means exhaust the possibilities of this approach.

(1) The Relative Price of Food in Poor Countries

It has been suggested that necessities are cheaper relative to luxuries in poor countries than in rich countries, and the reverse is true for luxuries.[2] Consider the aggregated component Food, definitely a necessity.[3] (Surely, the most generally accepted empirical proposition in all of economics is Engel's Law.) One can examine the Food entries in the second column of each of the 35 countries to see how large the Food price parities expressed relative to the overall PPP in fact are. (If the table covered all 64 countries in the 1985 benchmark study, then the required data---at least at the most elementary level of analysis in which nothing else is held constant ---would be at hand for the obvious regression to see how poor-vs.-rich makes a difference in the relative price of Food. The regression's independent variable, GDP per capita, is provided at the bottom of each country's columns.) If the "necessities are cheaper in poor countries ..." proposition were indeed empirically true---Samuelson [1974] only derived the proposition from plausible theoretical considerations---one would expect the Food second-column entries to be less than unity. They are close to 1.0, but for the most part are greater than 1.0.

(2) The Relative Price of Investment Goods

It is well-known that the share of GDP devoted to Investment is less for poor countries than rich. The share reflects the working out of a demand relationship, but the empirical proposition about shares by itself tells nothing about why poor countries invest less. Is it because of an income effect, or is it because the poor countries face higher investment prices? (Or is something else playing a critical role in reducing poor countries' investment?) An examination of the second-column entries in the Domestic Fixed Capital row can contribute to an understanding of the role of price in investment decisions. (Ignore here the "Capital Formation" row. It includes Net Exports which, of course, can be negative.) In all but four countries the entries are greater than 1.0, and usually they are much greater. This indicates that in most poor countries, the low Investment share is at least partly explained by high prices rather than simply low income.

(3) Similarity of Country Price Structures

The collection of column (2) entries for a country, expressed as a vector, defines the country's price structure. By devising a similarity measure between two vectors (one way is in terms of the direction-cosine of the angle formed by the two n-dimensional rays defined by the vectors), one can see which country pairs have similar price structures and which do not. The first thing to come to the mind of an economist to account for differences would be income differences; the next might involve international trading conditions like customs unions or tariff policies. On the other hand, a geographer might consider propinquity or climate differences as explanatory variables that account for the differences in price structures. Undoubtedly, truth involves both economic and non-economic considerations. (For one kind of exploration of price-structure differences, see Summers, Heston, Aten, and Nuxoll [1995].)

B Price Parities Divided by Exchange Rates (Component Price Levels)

It was once thought---and the thought lingered for a long, long time---that there was no need for country price level analysis. (NB: A country's

price level is the ratio of its PPP to its exchange rate.) This was because it was thought that international trade insures that price levels will be unity, at least in equilibrium or the long run. Fifty years after Cassel made the definitive proclamation on this point, the ICP showed that it was not so. This led to a cottage industry in which the admission price seemed to be the possession of a computer, the capacity to run a regression, and access to a set of international data---preferably a relevant data set. Attempts were made to clarify what consistent patterns there might be in the departures of the price level from unity in order to pin down what the causes of the departures might be. Definitive conclusions are still elusive. The only finding agreed to universally is that (subject to stochastic variation) poorer countries have lower price levels than richer countries.

It is suggested here, but it is not demonstrated, that a closer look at component price levels may yield critical insights into why PPP/Exchange Rate may consistently differ from unity. The key to why an analysis of component price levels may be useful is the obvious differences in income elasticities across components.

III Summary

This brief note presents detailed price information about a large group of poor countries. The prices are expressed as price parities of components of GDP at various levels of disaggregation in each of 35 countries. For each component, the price parity is given as the ratio of the domestic price of the component to the United States price. In addition, a country's price parities are expressed relative to the country's overall PPP and to its exchange rate.

A number of illustrations are given of how these price parities can be used to illuminate countries' price structures.

ENDNOTES

1. The ICP benchmark study from which these price parities were derived is described in detail in United Nations and Commission of the European Communities [1994]. In the benchmark study, prices were collected on hundreds of individual items. These items were grouped into about 150 "detailed categories"---also referred to in the ICP as "basic headings" ---and price parities were estimated for these groupings. The detailed-category price parities were used as inputs to the process of estimating price parities and quantities at the component level. The price parities presented here are for components, the lowest level of aggregation considered reliable for individual consideration.

2. See Samuelson [1974] for a discussion of the proposition, and Kravis, Heston, and Summers [1978] for a description of an attempt to verify empirically the proposition.

3. Laymen have their subjective conceptions of what necessities and luxuries are. Economists define necessities and luxuries in terms of income elasticities: necessities are income-inelastic goods and luxuries are income-elastic goods.

REFERENCES

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