



## Afterword to Part II

### 8.1 ABSOLUTE AND RELATIVE PPP (CHAPTER 5)

The theory in Chapter 5 clearly relates to the relationship between Cassel's absolute and relative PPP presented in Chapter 2. The empirical analysis in Chapter 5 exhibits positive results for relative PPP, with use of legitimate econometrics outside time-series analysis. Two other comments: First, the samples are over 1950–1975, which means mainly the Bretton Woods period. Adjustably fixed exchange rates—not floating rates—were the norm. Floating exchange rates were considered aberrations, at least until 1973. Second, cost-of-living PPP data are from the German Statistical Office, the source for the Houthakker dollar/mark PPP in Chapter 4.

### 8.2 LAW OF ONE PRICE (CHAPTER 6)

The data in Chapter 6 encompass primarily 1950–1975 and reaching 1980—periods of the Bretton Woods system and managed floating. This paper differs from all other testing of the “law of one price” [LOP]. Perhaps for that reason, the paper was ignored in the literature, except for a dismissal on the part of Christopher Clague (1989, p. 378), who writes:

There seems to me to be abundant evidence that there are large deviations from the law of one price for tradables...The time-series studies of Isard (1977) and Kravis and Lipsey (1978) provide compelling evidence that the prices of domestic and foreign [tradable] goods can diverge substantially, and Officer's (1986) interesting paper does not persuade me otherwise.

One notes that Chapter 6 acknowledges the Isard and Kravis-Lipsey studies as relevant work. Importantly, a later and excellent survey of the LOP and PPP literature reaches a conclusion opposite from that of Clague and close to the finding of Chapter 6:

While it is fair to say that a universal consensus may not exist yet, the emerging consensus at the present time is converging toward the view that deviations from the LOP are transitory and therefore the LOP holds in the long run among a broad range of tradable goods and currencies.—Ian W. Marsh, Evgenia Passari, and Lucio Sarno. (2012, p. 213)

### 8.3 NATIONAL PRICE LEVEL (CHAPTER 7)

Chapter 7 was critiqued vigorously by two economists: Christopher Clague (1989), whose reaction was published in the same issue of *Journal of Macroeconomics*, and Arna Desser (1994), whose assessment appeared five years later. Both authors point out that, providing international prices are exogenous for each country Geary-Khamis becomes a tractable price index. As an index-number issue, their statement is irrefutable. As an empirical matter, the extent to which international prices are given even for economically large countries requires testing, which neither I nor these critics perform.

The critics also take issue with my interpretation of the coefficient on the natural-resource variable, and there is merit in their judgment. Further, Clague questions my rejection of monetary or short-run variables in determination of the non-tradable/tradable price level. Part of his position relies on deviations from the “law of one price,” which “law” I defend in Chapter 6. The other part involves the desirability “to ‘correct’ observed national price levels for temporary disturbances in order to expose the structural influences” (Clague, 1989, p. 378). That justification certainly makes sense, pursuant to the control-variables technique in econometrics.<sup>1</sup>

In contrast to my econometric finding that “the accepted view of per capita income as the predominant explanatory variable receives no support,” Desser’s empirical results “support the standard finding that real income is a major determinant of the real price level.” Even though my regressions are outliers, that in no way impacts on the eight “issues” of Chapter 7.<sup>2</sup>

Clague and Desser argue that the inclusion of the share of nontradables as an explanatory variable should be based on causal hypotheses, not analytical relationships. Here there is perhaps a miscommunication of the theme of Chapter 7. My purpose was “to take seriously” the assumptions of the theory of the national price level and carry through the implications—analytical and econometric—to the end. Thus only structural variables entered the regressions.

Fundamentally, all three of us would agree on the following propositions. (1) There is a precise analytical relationship among the price level, the nontradable/tradable price level, and the share of nontradables. (2) This relationship is specific to the price index adopted. (3) In general-equilibrium analysis, the shares of nontradables and either price level are jointly determined variables.

But I go further: The ultimate logic of the national-price-level literature requires taking the nontradable/tradable price level (rather than the national price level itself) as *the* dependent variable, meaning that the other variables enter purely as determining variables (and that these variables be structural in nature). Clague judges that including the share of nontradables in the equation is a poor second-best to a general-equilibrium model. Desser argues that problems of simultaneity arise. Neither of these positions hold under the extreme logic of the national-price-level literature.

Interestingly, both critics find worthiness in the proposed estimation technique under *Sixth issue*.<sup>3</sup> “Essentially the procedure ‘purges’ PL of the arithmetic influence of  $SN_d$  and provides a cleaner test of the available theories of the national price level, which are really theories of P” (Clague, 1989, pp. 378–379).<sup>4</sup> “Using Officer’s analytical PL-P relationship from Equation (10) to compute a vector of Ps for the dependent variable should remove the arithmetic influences of the share of nontradables...the procedure for testing the real price level relationship by regressing the calculated relative price of nontradables on the independent variable,

exclusive of the nontradable share, seems an appropriate choice” (Desser, 1994, pp. 323, 325).<sup>5</sup>

The works of Clague, Desser, and myself are far from the last word on understanding the national price level. Interesting later research involves explanatory variables relating to exchange-rate regime, international financial integration, net foreign assets, and economic freedom.<sup>6</sup>

## NOTES

1. However, it is arguable that exclusion of control variables implies a “strong” test of a given hypothesis.
2. For an extension of the role of per-capita income, see Jeffrey H. Bergstrand (1991).
3. It is also true that both authors discuss problems with the technique.
4. The comma in the Clague quote is not poetic license on my part. Rather, the comma is Clague’s own use and indicates his appreciation of an important theme of Chapter 7.
5. The Desser quote is based in part on her empirical results.
6. See Bergstrand (1991), Christian Broda (2006), Mathias Hoffmann and Peter Tillmann (2012), Jaewoo Lee (2007), and Karam Shaar and Mohamed Ariff (2016).

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