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WORLD TRADE AND PAYMENTS

AN INTRODUCTION

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the early 1990s. The source is usually simple enough: a government that has control of a printing press but controls little else. Often it is a weak government printing money to fight a war.

In January 1994 the inflation rate in what remained of Yugoslavia (essentially Serbia) reached 313,563,558 percent per month, almost equaling the preceding record, which had been set by Hungary in 1945–1946. As with any hyperinflation, residents tried desperately to buy marks or dollars, anything to avoid holding the domestic currency. Reporting at the peak, a Belgrade newspaper described the situation: “Yesterday [morning] the price of the [Deutsche] mark on the black market was 2.0 million dinars, and around 3:00 P.M. it was 2.5 million dinars. Belgrade dealers were reluctant to sell marks, as they expected the exchange rate to reach 5 million dinars (per DM) by the evening. . . .”²²

As was mentioned in footnote 21, hyperinflation is one context in which PPP in a sense works well empirically. Table 19.1 reports cumulative increases in the price level and in the exchange rate for some memorable hyperinflations of the

Table 19.1
PPP in Great Hyperinflations of the Twentieth Century

Country	Period	$\frac{P_{\text{final}}}{P_{\text{initial}}}$	$\frac{E_{\text{final}}}{E_{\text{initial}}}$
Austria	10/1921–9/1922	93	29
Germany	7/1922–12/1923	179×10^8	141×10^8
Poland	1/1923–1/1924	699	491
Hungary	3/1923–2/1924 ^a	44	12
Hungary	8/1945–7/1946	381×10^{25}	304×10^{25}
Nat. China ^b	9/1945–5/1949	105×10^9	119×10^9
Bolivia	4/1984–9/1985	974	2,129
Peru	9/1988–8/1990	7,242	11,600
Argentina	4/1989–3/1990	204	294
Brazil	11/1989–3/1990	12	8
Ukraine	4/1991–12/1993	4,772	799
Belarus	4/1991–2/1992	8	6
The Congo	10/1991–9/1994	237,499	284,519
Tajikistan	1/1992–12/1993	1,088	743
Serbia	2/1992–1/1994	366×10^{20}	8.3×10^{20}
Armenia	9/1993–5/1994	139	99

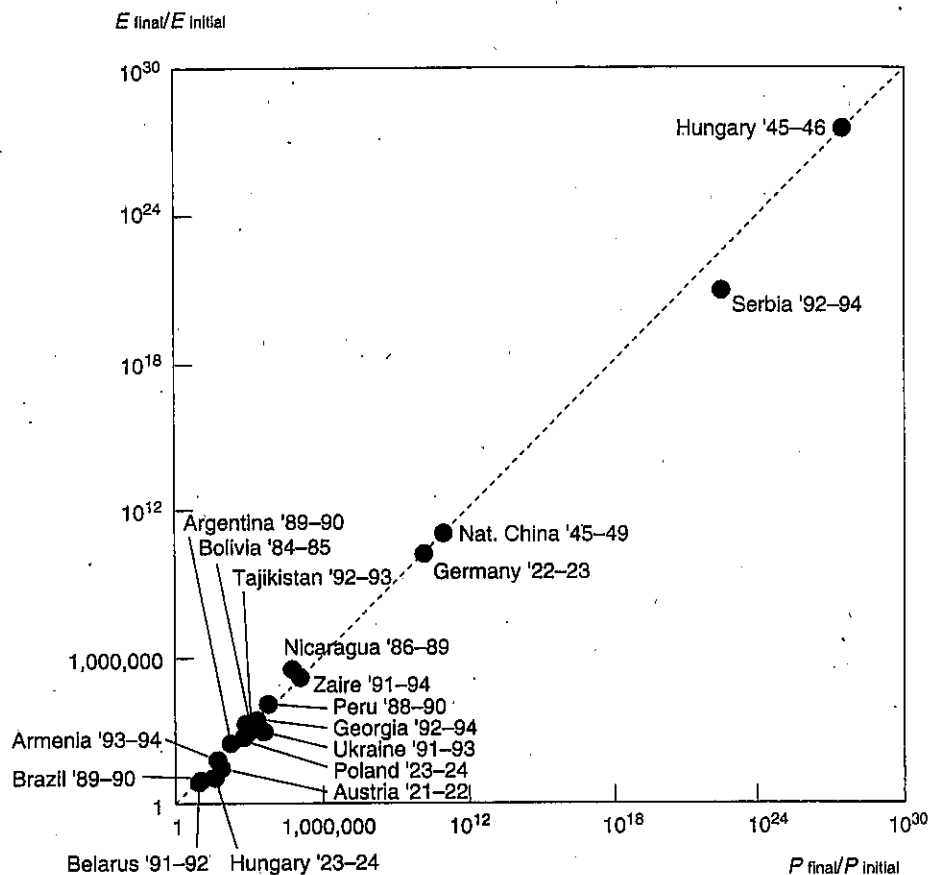
^aCumulative rise in exchange rate in Hungary is from average of March 1923 to average of March 1924.

^bChina's exchange rate change is the change in the price of gold rather than a direct exchange rate.

Sources: P. Cagan, “The Monetary Dynamics of Hyperinflation,” in Milton Friedman, *Studies in the Quantity Theory of Money* (Chicago: University of Chicago Press, 1956); Bogetic, Dragutinovic, and Petrovic, op. cit.; *Economic Review and International Financial Statistics*, IMF; T. Sargent, “The Ends of Four Big Inflations,” in Robert Hall, *Inflation: Causes and Effects* (Chicago: University of Chicago Press, 1982); D. Paarlberg, *An Analysis and History of Inflation* (New York: Praeger, 1993); T. Hu, “Hyperinflation and the Dynamics of the Demand for Money in China, 1945–1949,” *Journal of Political Economy* (January/February 1971); International Monetary Fund.

²²The report was dated January 16, 1994, soon before a successful stabilization. As reported by Z. Bogetic, D. Dragutinovic, and P. Petrovic, “Anatomy of Hyperinflation and the Beginning of Stabilization in Yugoslavia, 1992–1994,” World Bank (September 1994).

Figure 19.5
PPP in Great Hyperinflations of the Twentieth Century



twentieth century. They are expressed as multiples—that is, the level at the end of the period divided by the level at the beginning. In most of the hyperinflations reported, the increase in the exchange rate was roughly of the same order of magnitude as the increase in the price level. Figure 19.5 graphs the cumulative change in the price level and exchange rate for each of these hyperinflations. The points lie impressively close to the 45° line, supporting PPP.²³

Yet, there is another sense in which PPP works poorly during a hyperinflation. We can see from Table 19.1 that the cumulative rise in the exchange rate

²³Similarly, Jacob Frenkel found that an OLS regression testing the relationship between the exchange rate E and the relative price level P/P^* in the German hyperinflation of 1920–1923 produced a coefficient close to one. “Purchasing Power Parity: Doctrinal Perspective and Evidence from the 1920’s,” *Journal of International Economics*, 8, 2 (May 1978): 169–191.