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World Hyperinflations

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Abstract:

This chapter supplies, for the first time, a table that contains all 56 episodes of hyperinflation, including several which had previously gone unreported. The Hyperinflation Table is compiled in a systematic and uniform way. Most importantly, it meets the replicability test. It utilizes clean and consistent inflation metrics, indicates the start and end dates of each episode, identifies the month of peak hyperinflation, and signifies the currency that was in circulation, as well as the method used to calculate inflation rates.

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[1] *Forthcoming in:* Randall Parker and Robert Whaples (eds.) (2013) *The Handbook of Major Events in Economic History*, London: Routledge Publishing. (expected publication date: Summer 2013).
[2] The authors wish to thank Alex Kwok and Wyatt Larkin for their comments.

Short Bios:

Steve H. Hanke

Steve H. Hanke is a Professor of Applied Economics at The Johns Hopkins University and a Senior Fellow at the Cato Institute. He is the author of *Zimbabwe: Hyperinflation to Growth* (2008).

Nicholas Krus

Nicholas Krus is a research associate at the Johns Hopkins Institute for Applied Economics, Global Health, and the Study of Business Enterprise. He graduated Phi Beta Kappa from The Johns Hopkins University with a double major in Economics and Mathematics.

"…We too must bring into our science a strict order and discipline, which

we are still far from having…by a disorderly and ambiguous terminology

we are led into the most palpable mistakes and misunderstandings – all

these failings are of so frequent occurrence in our science that they almost

seem to be characteristic of its style."

– Eugen von Böhm-Bawerk (1891: 382-83)

Regardless of how far the study of economics has advanced, the disorderly and ambiguous terminology cited by Eugen von Böhm-Bawerk over a century ago still exists. For example, Friedrich Hayek complained about the kaleidoscope of definitions surrounding the word "capital" (1941). Fritz Machlup also emphasized this point in *Economic Semantics* (1991), with a call for clarity in definition. It is only after analysts – armed with first principles – develop definitions and classification systems that data can be properly collected, sorted, and analyzed, in a way that can be replicated.

This chapter supplies what has been long overdue in the study of hyperinflation – a table that contains all 56 hyperinflation episodes, including several which had previously gone unreported.[3] The Hyperinflation Table is compiled in a systematic and uniform way. Most importantly, it meets the replicability test. It utilizes clean and consistent inflation metrics, indicates the start and end dates of each episode, identifies the month of peak hyperinflation, and signifies the currency that was in circulation, as well as the method used to calculate inflation rates.

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[3] If we were to include our estimate for the 2009-11 case of hyperinflation in North Korea, the total number of hyperinflation episodes would increase to 57. However, as explained in the notes to the table, the available North Korean data did not meet our minimum quality standards. Accordingly, we omitted this episode from the table.

The literature on hyperinflation is replete with ad-hoc definitions, vague, ill-defined terminology, and a lack of concern for clear, uniform metrics. In consequence, sloppy reasoning is all too common. Although Peter Bernholz (2003) has provided the most comprehensive list of hyperinflation episodes available (30 cases), he does not follow a precise, consistent definition, and misses almost half of the cases we report in this chapter. Without a complete list of hyperinflation episodes in the scholarly literature, many people simply rely on Wikipedia and the unreliable information contained therein (e.g. Fischer 2010). To fill the void in the academic literature, we set out to construct a new, comprehensive table of the world's hyperinflation episodes.

The Arduous Data Compilation Process

We soon learned why no such table exists. We frequently found leads suggesting new episodes, only to discover that the proper documentation of their source was lacking. Even in cases in which we thought replication would be straightforward, it was not.

Despite the fall of communism having occurred over two decades ago, the Soviet-Bloc countries were a particular source of frustration – the data had seemingly been lost in time. After scouring the Library of Congress and the Joint World Bank-IMF Library in Washington D.C., as well as a variety of online databases, we finally came across a series of World Bank publications that ostensibly contained the requisite information.[4] But, much of the information was not presented in a usable form. It was not uniform, and its dimensions were not always defined. For example, we did not know whether the numerical values represented year-over-year changes, monthly changes, or a price index. To put the raw data into shape, analysis and considerable effort were required.

The challenges we faced with the Soviet Bloc were compounded, as we looked to

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[4] See the footnotes to the table for the references to these publications.

the Balkan States and began to investigate hyperinflation episodes of the 1990s. In particular, Bosnia and Herzegovina and the Republika Srpska posed the most difficult problems. The Socialist Federal Republic of Yugoslavia had a history of very high inflation, punctuated by episodes of hyperinflation. Prior to its collapse, it circulated the Yugoslav dinar. But, shortly after Bosnia and Herzegovina declared its independence from Yugoslavia in 1992, there were five currencies circulating in the region: the German mark, the Croatian kuna, and three separate dinars issued by Bosnia and Herzegovina (BH), the Republika Srpska (RS), and the Federal Republic of Yugoslavia (Brown et al., 1996).

From what data were initially available, we knew that Yugoslavia had experienced hyperinflation, and that Croatia had not (CNB, 2012). Because the BH dinar and the RS dinar were both initially pegged to the Yugoslav dinar, and based on the annual inflation data that were available, we knew that the Republika Srpska and Bosnia and Herzegovina had experienced hyperinflation (Brown et al., 1996). We then began our search for monthly data. For months, we pored over reports from the International Monetary Fund (IMF), the World Bank, the U.S. government, the Central Bank of Bosnia and Herzegovina, and Bosnia and Herzegovina's Federal Office of Statistics (FZS), and we were still unable to find the monthly data. We also consulted numerous officials from local and international agencies, but, by all accounts, the information had simply not survived the war.[5]

Finally, in the eleventh hour, we obtained the essential data for both the

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[5] The authors contacted many of Steve Hanke's former colleagues in the region in an effort to obtain data. Hanke was a personal economic adviser to Živko Pregl, the vice president of the Socialist Federal Rebuplic of Yugoslavia, from 1990 to June 1991. Hanke later served as a special advisor to the U.S. Government on the establishment of Bosnia and Herzegovina's currency board. (see Hanke and Schuler, 1991; Hanke 1996/7).

Republika Srpska and Bosnia and Herzegovina.[6] As can be seen in the table, Bosnia and

Herzegovina's peak month of inflation occurred in June 1992, with a monthly rate of

322%. The Republika Srpska experienced its peak monthly inflation rate of

297,000,000% in January 1994.

In another case, we were able to overcome data deficiencies in a different way.

We knew that the Free City of Danzig engineered a currency reform in 1923, following

inflationary developments similar to those that had visited Germany. Suspecting that this

currency reform was enacted in response to a case of hyperinflation, and lacking inflation

data, we were forced to employ creative methods to estimate Danzig's inflation rate.

In 1923, Danzig was considered an independent "Free City", under the protection

of the League of Nations. However, it did not issue its own domestic currency, but

instead circulated the German papiermark. How could we estimate the inflation rate for

such a small, relatively unknown city-state, which had adopted another country's

currency as its own, and for which no inflation data existed? From past experience

(Hanke and Kwok, 2009), we knew that purchasing power parity (PPP) could overcome

such an obstacle. The theory states that the ratio of the price level between two countries

is equivalent to their exchange rate. But, did PPP hold for the case of Danzig? In short,

yes. As Jacob Frenkel (1976) showed – with Germany's hyperinflation during the same

time period – as inflation accelerates towards hyperinflation, theory becomes reality.[7]

Accordingly, exchange-rate data held the key to discovering the missing inflation

rate. Since Danzig circulated the German papiermark, it had an exchange rate of one with

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[6] The authors would like to thank Dr. Mladen Ivanić and Prof. Simeun Vilendecic for their assistance in
providing the monthly inflation data for the Republika Srpska. The authors would also like to thank Prof.
Shirley Gedeon and Prof. Dzenan Djonlagic for their assistance in providing the monthly inflation rates for
Bosnia and Herzegovina.
[7] The validity of purchasing power parity has also been shown and explained for other countries with very
high inflation or hyperinflation (McNown and Wallace, 1989; Hanke and Kwok, 2009).

Germany.[8] The price level in Danzig, therefore, was equivalent to that of Germany, placing the Free City of Danzig into the hyperinflation club, with a peak monthly inflation rate of 2,440% in September 1923.

Some "missing" cases were easier to find. We discovered the data for the Democratic Republic of Congo's August 1998 hyperinflation using the IMF's International Financial Statistics database – one readily available to most economists. Surprisingly, these data had gone unnoticed and ignored in the major works on hyperinflation.

Another largely unreported hyperinflation episode occurred in the Philippines, during World War II. In 1942, during its occupation of what was then the Commonwealth of the Philippines, Japan replaced the Philippine peso with Japanese war notes. These notes were dubbed "Mickey Mouse money", and their over-issuance eventually resulted in a hyperinflation that peaked in January 1944. It should be noted that the U.S. Army, under orders from General Douglas MacArthur, did add a relatively small amount of fuel to the Philippine hyperinflation fire by surreptitiously distributing counterfeit Japanese war notes to Philippine guerilla troops (Hartendorp 1958).

As our search for hyperinflation episodes drew to an end, we checked our work, and one figure in particular caught our attention. In October 2009, when we first obtained data for Azerbaijan, the International Financial Statistics database listed a peak monthly inflation rate of 118%. But, as of November 2011, this statistic had been changed to 327%. We inquired as to the reason for this change. The IMF informed us that the number should have been kept at 118%, thanked us for bringing this issue to their attention, and corrected the entry. This incident attests to the fact that simple clerical

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[8] Danzig also circulated a negligable amount of "emergency mark currency" (Loveday 1924).

errors can lead to misleading results, particularly when the erroneous number is nearly

three times the size of the true number.

Construction of the Table

One of the biggest problems encountered when discussing hyperinflation is the

extreme size of the monthly inflation rates. For example, in July 1946, Hungary had a

monthly inflation rate of 4.19×10^{16}%. Physicist Richard Feynman, a master of

communication, provided the following analogy to help his readers grasp the size of the

minute particles he studied, "If an apple was magnified to the size of the earth, then the

atoms in the apple would be approximately the size of the original apple" (Feynman et

al., 1995: 5). Feynman's analogy highlights the "size problem" one encounters in the

study of atomic theory. Similarly, in the study of hyperinflation, it is difficult to

comprehend the size of the "large" numbers represented by monthly inflation rates.

In an effort to overcome this size problem, we included two metrics that help put

hyperinflation into perspective: the equivalent daily inflation rate and the time required

for prices to double. Following Feynman's analogy, as atoms are to apples, equivalent

daily inflation rates are to monthly inflation rates. Thus, by making these calculations, we

can more easily grasp the magnitude of Hungary's world-record hyperinflation; during its

peak month, July 1946, the equivalent daily inflation rate was roughly 207%, with prices

doubling every 15 hours.

To ensure uniformity in the table, we then determined which price index to use as

our primary inflation measure. We ultimately chose to use consumer price indices, as

they best reflect price changes experienced by the final consumer. If consumer prices

were not available, we utilized a wholesale price index, even though these prices are once

removed from the final consumer.

During periods of extreme hyperinflation, however, conventional price indices are sometimes not available. In these cases, it is necessary to utilize proxies to determine monthly inflation rates. Greece's inflation rate, for example, was calculated by measuring the rise in the drachma price of the gold sovereign, and France's was derived using changes in exchange rates. For the case of Zimbabwe, the official consumer price index ended in July 2008. This date is often incorrectly cited as the peak month of its hyperinflation (Koech 2011); when, in fact, Zimbabwe's peak inflation occurred three and a half months later. As Hanke and Kwok (2009) determined – by calculating the changes in the exchange rate implied by the prices of a stock that traded simultaneously on stock exchanges in Harare and London – Zimbabwe's hyperinflation actually peaked in mid-November 2008, with a monthly rate over 30 million times higher than the final inflation rate reported by the government.

For clarity, it was also necessary to indicate the currency in circulation, because several countries that experienced hyperinflation were "dollarized". For example, the rapidly depreciating Russian ruble circulated throughout many of the post-Soviet countries in 1992. Accordingly, in places like Ukraine and Moldova, hyperinflation occurred even though these countries did not issue a domestic currency.

Additionally, in the case of the world's first hyperinflation, that of France, there were two separate currencies in circulation in 1796, the mandat and the assignat. But, in reading the literature, you wouldn't know it. Many experts incorrectly claim the peak of France's hyperinflation was associated with the rapidly depreciating assignat (e.g. Cagan, 1987; Végh, 1995; Bernholz, 1995). But, it was the even more rapidly depreciating mandat (not the assignat) which set the record, generating a monthly inflation rate of 304% in mid-August 1796. Unfortunately, when it comes to currencies and exchange-rate

regimes, errors like this are all too common, as factoids often come to replace facts

(White and Schuler, 2009; Hanke 2002).

The Definition of Hyperinflation

The literature on hyperinflation is riddled with a variety of definitions, and more

often than not, they are vague and ill-defined. In search of a cornerstone for our definition

of hyperinflation, we began with Philip Cagan's (1956) widely accepted definition: a

price-level increase of at least 50% per month.

Under Cagan's definition, an episode of hyperinflation starts when there is a

month in which the price level increases by at least 50%. When the monthly inflation rate

drops below 50% and stays there for at least one year, the episode is said to end.[9]

However, even Cagan does not strictly adhere to his own definition. For example, in

addition to making several errors in his hyperinflation table (1956: 26), Cagan selectively

excludes Germany's 1920 case of hyperinflation, presumably because of its short

duration (one month).[10]

We chose to follow Cagan's definition strictly. In The Hyperinflation Table, we

can see the implications of this in the Chinese and Taiwanese episodes of hyperinflation.

Whereas these cases are typically considered to be single periods of hyperinflation, under

our definition, the episodes qualify as two and three separate instances, respectively.

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[9] For example, if the monthly inflation rate for July is 50%, and the next twelve months are marked by monthly inflation rates below 50%, then the end date of the episode would be July.

[10] Cagan (1956) failed to report the correct end dates for Austria's and Germany's hyperinflation episodes. His table (1956: 26) also contains errors for the start date, end date, and peak month of inflation during the Russia / USSR hyperinflation of the early 1920s. Cagan's analysis of Greece's hyperinflation in 1941 also illustrates his inconsistency in applying his own methodology. If Cagan were to have strictly applied his definition to the data he used, the Greek episode would qualify as two separate cases. That said, by utilizing a different, more accurate data set (see footnote 7 to the table), we determined that Greece experienced a single episode of hyperinflation, from 1941-45.

The Table

Hyperinflation is an economic malady that arises under extreme conditions: war, political mismanagement, and the transition from a command to market-based economy – to name a few. In each of these circumstances, there are barriers to the recording and publication of reliable inflation statistics. As we discovered over the course of our investigation, overcoming these barriers was an arduous and painstaking process. In light of this, it is little wonder that no one has been able to fully and accurately document every case of hyperinflation.

After years of disorder in the study of hyperinflation, we can now, with The Hyperinflation Table, finally let the data speak for themselves.

Location	Start Date	End Date	Month With Highest Inflation Rate	Highest Monthly Inflation Rate	Equivalent Daily Inflation Rate	Time Required For Prices To Double	Currency	Type of Price Index
Hungary[1]	Aug. 1945	Jul. 1946	Jul. 1946	4.19×10^{16}%	207%	15.0 hours	Pengő	Consumer
Zimbabwe[2]	Mar. 2007	Mid-Nov. 2008	Mid-Nov. 2008	7.96×10^{10}%	98.0%	24.7 hours	Dollar	Implied Exchange Rate*
Yugoslavia[3]	Apr. 1992	Jan. 1994	Jan. 1994	313,000,000%	64.6%	1.41 days	Dinar	Consumer
Republika Srpska†[4]	Apr. 1992	Jan. 1994	Jan. 1994	297,000,000%	64.3%	1.41 days	Dinar	Consumer
Germany[5]	Aug. 1922	Dec. 1923	Oct. 1923	29,500%	20.9%	3.70 days	Papiermark	Wholesale
Greece[6]	May. 1941	Dec. 1945	Oct. 1944	13,800%	17.9%	4.27 days	Drachma	Exchange Rate‡
China§[7]	Oct. 1947	Mid-May 1949	Apr. 1949	5,070%	14.1%	5.34 days	Yuan	Wholesale for Shanghai
Free City of Danzig[8]	Aug. 1922	Mid-Oct. 1923	Sep. 1923	2,440%	11.4%	6.52 days	German Papiermark	Exchange Rate**
Armenia[9]	Oct. 1993	Dec. 1994	Nov. 1993	438%	5.77%	12.5 days	Dram & Russian Ruble	Consumer
Turkmenistan††[10]	Jan. 1992	Nov. 1993	Nov. 1993	429%	5.71%	12.7 days	Manat	Consumer
Taiwan[11]	Aug. 1945	Sep. 1945	Aug. 1945	399%	5.50%	13.1 days	Yen	Wholesale for Taipei
Peru[12]	Jul. 1990	Aug. 1990	Aug. 1990	397%	5.49%	13.1 days	Inti	Consumer
Bosnia and Herzegovina[13]	Apr. 1992	Jun. 1993	Jun. 1992	322%	4.92%	14.6 days	Dinar	Consumer
France[14]	May 1795	Nov. 1796	Mid-Aug. 1796	304%	4.77%	15.1 days	Mandat	Exchange Rate
China[15]	Jul. 1943	Aug. 1945	Jun. 1945	302%	4.75%	15.2 days	Yuan	Wholesale for Shanghai
Ukraine[16]	Jan. 1992	Nov. 1994	Jan. 1992	285%	4.60%	15.6 days	Russian Ruble	Consumer
Poland[17]	Jan. 1923	Jan. 1924	Oct. 1923	275%	4.50%	16.0 days	Marka	Wholesale
Nicaragua[18]	Jun. 1986	Mar. 1991	Mar. 1991	261%	4.37%	16.4 days	Córdoba	Consumer
Congo (Zaire)[19]	Nov. 1993	Sep. 1994	Nov. 1993	250%	4.26%	16.8 days	Zaïre	Consumer
Russia††[20]	Jan. 1992	Jan. 1992	Jan. 1992	245%	4.22%	17.0 days	Ruble	Consumer
Bulgaria[21]	Feb. 1997	Feb. 1997	Feb. 1997	242%	4.19%	17.1 days	Lev	Consumer
Moldova[22]	Jan. 1992	Dec. 1993	Jan. 1992	240%	4.16%	17.2 days	Russian Ruble	Consumer
Russia / USSR[23]	Jan. 1922	Feb. 1924	Feb. 1924	212%	3.86%	18.5 days	Ruble	Consumer
Georgia[24]	Sep. 1993	Sep. 1994	Sep. 1994	211%	3.86%	18.6 days	Coupon	Consumer
Tajikistan††[25]	Jan. 1992	Oct. 1993	Jan. 1992	201%	3.74%	19.1 days	Russian Ruble	Consumer
Georgia[26]	Mar. 1992	Apr. 1992	Mar. 1992	198%	3.70%	19.3 days	Russian Ruble	Consumer
Argentina[27]	May 1989	Mar. 1990	Jul. 1989	197%	3.69%	19.4 days	Austral	Consumer
Bolivia[28]	Apr. 1984	Sep. 1985	Feb. 1985	183%	3.53%	20.3 days	Boliviano	Consumer
Belarus††[29]	Jan. 1992	Feb. 1992	Jan. 1992	159%	3.22%	22.2 days	Russian Ruble	Consumer
Kyrgyzstan††[30]	Jan. 1992	Jan. 1992	Jan. 1992	157%	3.20%	22.3 days	Russian Ruble	Consumer
Kazakhstan††[31]	Jan. 1992	Jan. 1992	Jan. 1992	141%	2.97%	24.0 days	Russian Ruble	Consumer
Austria[32]	Oct. 1921	Sep. 1922	Aug. 1922	129%	2.80%	25.5 days	Crown	Consumer
Bulgaria[33]	Feb. 1991	Mar. 1991	Feb. 1991	123%	2.71%	26.3 days	Lev	Consumer
Uzbekistan††[34]	Jan. 1992	Feb. 1992	Jan. 1992	118%	2.64%	27.0 days	Russian Ruble	Consumer
Azerbaijan[35]	Jan. 1992	Dec. 1994	Jan. 1992	118%	2.63%	27.0 days	Russian Ruble	Consumer
Congo (Zaire)[36]	Oct. 1991	Sep. 1992	Nov. 1991	114%	2.57%	27.7 days	Zaïre	Consumer
Peru[37]	Sep. 1988	Sep. 1988	Sep. 1988	114%	2.57%	27.7 days	Inti	Consumer
Taiwan[38]	Oct. 1948	May 1949	Oct. 1948	108%	2.46%	28.9 days	Taipi	Wholesale for Taipei
Hungary[39]	Mar. 1923	Feb. 1924	Jul. 1923	97.9%	2.30%	30.9 days	Crown	Consumer
Chile[40]	Oct. 1973	Oct. 1973	Oct. 1973	87.6%	2.12%	33.5 days	Escudo	Consumer
Estonia††[41]	Jan. 1992	Feb. 1992	Jan. 1992	87.2%	2.11%	33.6 days	Russian Ruble	Consumer
Angola[42]	Dec. 1994	Jan. 1997	May 1996	84.1%	2.06%	34.5 days	Kwanza	Consumer
Brazil[43]	Dec. 1989	Mar. 1990	Mar. 1990	82.4%	2.02%	35.1 days	Cruzado & Cruzeiro	Consumer
Democratic Republic of Congo[44]	Aug. 1998	Aug. 1998	Aug. 1998	78.5%	1.95%	36.4 days	Franc	Consumer
Poland[45]	Oct. 1989	Jan. 1990	Jan. 1990	77.3%	1.93%	36.8 days	Złoty	Consumer
Armenia††[46]	Jan. 1992	Feb. 1992	Jan. 1992	73.1%	1.85%	38.4 days	Russian Ruble	Wholesale
Tajikistan[47]	Oct. 1995	Nov. 1995	Nov. 1995	65.2%	1.69%	42.0 days	Tajikistani Ruble	Wholesale
Latvia[48]	Jan. 1992	Jan. 1992	Jan. 1992	64.4%	1.67%	42.4 days	Russian Ruble	Consumer
Turkmenistan††[49]	Nov. 1995	Jan. 1996	Jan. 1996	62.5%	1.63%	43.4 days	Manat	Consumer
Philippines[50]	Jan. 1944	Dec. 1944	Jan. 1944	60.0%	1.58%	44.9 days	Japanese War Notes	Consumer
Yugoslavia[51]	Sep. 1989	Dec. 1989	Dec. 1989	59.7%	1.57%	45.1 days	Dinar	Consumer
Germany[52]	Jan. 1920	Jan. 1920	Jan. 1920	56.9%	1.51%	46.8 days	Papiermark	Wholesale
Kazakhstan[53]	Nov. 1993	Nov. 1993	Nov. 1993	55.5%	1.48%	47.8 days	Tenge & Russian Ruble	Consumer
Lithuania[54]	Jan. 1992	Jan. 1992	Jan. 1992	54.0%	1.45%	48.8 days	Russian Ruble	Consumer
Belarus[55]	Aug. 1994	Aug. 1994	Aug. 1994	53.4%	1.44%	49.3 days	Belarusian Ruble	Consumer
Taiwan[56]	Feb. 1947	Feb. 1947	Feb. 1947	50.8%	1.38%	51.4 days	Taipi	Wholesale for Taipei

Source: Steve H. Hanke and Nicholas Krus (2012) "World Hyperinflations", Cato Working Paper no. 8, August 15. *Forthcoming in:* Randall Parker and Robert Whaples (eds.) (2013) *The Handbook of Major Events in Economic History*, London: Routledge Publishing. (expected publication date: Summer 2013).

Notes:

- When a country experiences periods of hyperinflation that are broken up by 12 or more consecutive months with a monthly inflation rate below 50%, the periods are defined as separate episodes of hyperinflation.

- The currency listed in the chart is the one that, in a particular location, is associated with the highest monthly rate of inflation. The currency may not have been the only one that was in circulation, in that location, during the episode.

- We are aware of one other case of hyperinflation: North Korea. We reached this conclusion after calculating inflation rates using data from the foreign exchange black market, and also by observing changes in the price of rice. Based on our estimates, this episode of hyperinflation most likely occurred from December 2009 to mid-January 2011. Using black-market exchange-rate data, and calculations based on purchasing power parity, we determined that the North Korean hyperinflation peaked in early March 2010, with a monthly rate of 496% (implying a 6.13% daily inflation rate and a price-doubling time of 11.8 days). When we used rice price data, we calculated the peak month to be mid-January 2010, with a monthly rate of 348% (implying a 5.12% daily inflation rate and a price-doubling time of 14.1 days). All of these data were obtained August 13, 2012 from Daily NK, an online newspaper that focuses on issues relating to North Korea (http://www.dailynk.com/english/market.php). We also acknowledge that our investigation was aided by reports from Good Friends USA, a Korean-American advocacy and research organization, as well as from Marcus Noland at the Peterson Institute for International Economics.

(*) The authors calculated Zimbabwe's inflation rate, from August to November 2008, using changes in the price of the stock, Old Mutual, which was traded both on the Harare and London stock exchanges. The stock prices yielded an implied exchange rate for Zimbabwe dollars, under purchasing power parity.

(†) The Republika Srpska is a Serb-majority, semi-autonomous entity within Bosnia and Herzegovina. From 1992 until early 1994, the National Bank of Republika Srpska issued its own unique currency, the Republika Srpska dinar.

(‡) Greece's inflation rate was estimated by calculating the drachma / gold sovereign exchange rate.

(§) The peak monthly inflation rate listed for China in the table differs from that presented in one of the authors' previous pieces on hyperinflation (Hanke and Kwok, 2009). This revision is based on new data from a number of sources, which were recently obtained from the Library of Congress in Washington, D.C.

(**) We calculated the Free City of Danzig's inflation rate using German inflation data, since the German papiermark was in circulation in Danzig during this time. It is worth noting that Germany and Danzig experienced different peak months of hyperinflation. This is case because the last full month in which the German papiermark circulated in the Free City of Danzig was September 1923. Germany continued to circulate the papiermark beyond this point, and subsequently experienced its peak month of hyperinflation (October 1923).

(††) The data for many of the post-Soviet countries were only available in the World Bank's Statistical Handbook: States of the Former USSR. In this publication, the authors stated that the data should be viewed with an extra degree of caution because the statistics were taken from the corresponding official internal government source and not independently reviewed by the World Bank. However, these statistics are official and are the only source of data available for the corresponding time periods for each country.

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