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**Causal Factor in the Crisis of Confidence in Hyperinflation**

## **Introduction**

Hyperinflation is very much like an economic boogeyman. It exists as a warning against expansionary activity. We have heard since the early two thousands that if we don't stop what we are doing we will hit hyperinflation and then the world economy will collapse. We call these people inflation hawks and most mainstream economists write them off as right-wing nutjobs who don't know what they are talking about. Now I think any rational thinker can concede that a great number of those who are shouting on the streets words of warning that they are indeed nutjobs. However, the worst thing about this economic boogeyman is that we know it exists. These nutjobs might not fully understand hyperinflation or how and why it comes but then again no one else does either, at least not fully. The problem is that while economics has succeeded in determining at least some of the causal factors of these economic phenomena, there is still no reasonable consensus on why these causal factors sometimes don't cause anything at all. I aim to find a link between commercial lending and the occurrence of hyperinflation and what is more important the lack of occurrence of hyperinflation.

However, before any evidence can be presented and before any conclusions can be drawn there must be a general understanding of what has been written on hyperinflation in regards to its causes. But before even that endeavor is made, a brief overview of the phenomena will serve to tie together the various sources.

## **Definition**

Hyperinflation is an economic occurrence when a nation experiences large, accelerating and seemingly unstoppable rates of inflation. This naturally means that the price level within this nation rises rapidly to meet this level of inflation. What this amounts to is the decline and eventual destruction of the purchasing power of the currency that is being inflated.

The economic goods that this currency is (or at least would be) purchasing stay at similar exchange ratios between the goods. The value of these goods stays the same with respect to the value of other good, both foreign and domestic (Bowyer 2012).

This description, however, is misleading. The description I have provided does not belong solely to hyperinflation. It also applies to just general inflation, the inflation we see happening every day in most modern countries. The difference between this general inflation and the catastrophic hyperinflation is only a matter of magnitude, at least technically. However, it is difficult to classify exactly what the difference between these two things is in any intelligible terms. Here I lean on an authority only tangentially related to economics, and unrelated to the subject of hyperinflation completely: United States Supreme Court Justice Potter Stewart. He said in regards to obscenity, "I know it when I see it." It is this same principle that allows anyone who is questioning whether a nation is experiencing hyperinflation to know. If it were hyperinflation you would know it when you saw it.

That being said, economists desire to have some sort of quantitative measure for these sorts of things. In this specific instance we can look to Phillip Cagan. He is regarded as an

authority of hyperinflation. He wrote a book called *The Monetary Dynamics of Hyperinflation*. This book is one of the first serious discussions of hyperinflation. In this book he attempts to enumerate where inflation stops being merely inflation and becomes hyperinflation. This process is not much more than arbitrary selection but it seems fitting enough. Cagan establishes that hyperinflation begins when the monthly inflation rate reaches 50%. He then goes on to enumerate where inflation ends by positing that hyperinflation is over when monthly inflation rate declines below 50% and remains so for a year (Cagan 1956). This definition is almost entirely arbitrary but it is sufficient.

However, Cagan was not the only person to try to define a hyperinflationary incident. The International Accounting Standards Board (IASB) describes five factors that allow us to identify the existence of a hyperinflationary incident ("Financial Reporting in Hyperinflationary Economies" 2009).

The first of these factors is that people prefer not to hold currency. They instead prefer to hold assets or foreign currency. This comes along with money being directly invested due to the rapidly declining purchasing power. The second comes along with the first in that the people regard prices in terms of foreign currency instead of domestic currency. The third is that purchases and sales on credit take into account a purchasing power premium to compensate for the loss of value. The fourth and fifth are that interest rates, wages, prices and cumulative inflation reaches 100% of prior levels.

## **Models and General Causes**

The literature on this topic is less concerned with defining this phenomenon and more concerned with looking for causal factors and general effects. The first causal factor is abundantly clear to even people who have never read more than a sentence on the subject of economics. Hyperinflation cannot occur without continuing and most often accelerating inflation.

This continuing and accelerating inflation brings about increases in the velocity of money. In turn this accelerates price inflation further as people no longer hold money as its value is constantly declining.

This process is something that happens in all cases of hyperinflation, it may as well be part of the definition. However, when economists look to cases of hyperinflation and nations that are inflating their currency the question that is asked is: Why do these nations go from hyperinflation to inflation?

We have a good understanding of what happens when nations go into hyperinflation and even how these nations go into hyperinflation. The problem is that there is no general consensus of why exactly inflation turns into hyperinflation that is predictive or even sufficient.

The only consensus that has been reached is two pronged although neither is sufficient. These two models or explanations are called the monetary model and the confidence model.

The crisis model is a truncation of what it was originally called which is the crisis of confidence model. This model claims that some sort of event or series of events leads to a crisis of confidence. What this amounts to is that people don't believe that the currency will remain

solvent. People don't want to hold bank notes that lose value so they hold assets instead. It isn't just the consumers who are having this crisis. Sellers of goods demand higher and higher prices for their goods because of the higher risk of accepting currency (Parsson 1974).

Under this model the cause of hyperinflation isn't the crisis. That is the starting point, however the cause isn't solely the war or regime change or whatever it would be. Nations that inflate go to war all the time but do not experience hyperinflation. The crisis may be a causal factor but the central question under this model is why do some nations have this crisis of confidence and other do not.

The reason that proponents of this model come to is that there is something about the people that makes them react in this fashion to crises. It is the propensity of people to react to crises with hysteria that differentiates between instances of inflation in times of crisis (Fischer 2010).

This explanation is insufficient in explaining why hyperinflation happens. While it is generally agreeable that hyperinflation requires inflation and a crisis of confidence it is intellectual laziness that causes people to see this as a complete explanation. This is tantamount to looking back on an instance of hyperinflation and saying well those people must have been crazy. This model succeeds in asking a valuable question: Why do these people lose confidence when other do not? This is a valuable question but the models answer is insufficient.

The other model that seeks to explain hyperinflation is the monetary model. What this amounts to is the opposite of the confidence model. In the confidence model, the crisis of

confidence leads to an increase in the velocity of money. This drives up prices and inflation accelerates. The monetary model is the opposite. The monetary model claims that first there is a rapid increase in circulating medium which then causes surges in the velocity of money.

The astute reader will see that this model shares the same problem as the first. While it is difficult to know whether the velocity change comes before or after the surge in money stock and the data doesn't seem to agree between separate instances, this is not the central problem. The question that is left unanswered by this model is the same as the former: Why do some people stop holding money and others don't?

It is easy to say that the preferences of each individual determine whether or not there is a decline in confidence. It is easy to say when enough people's preferences are such that they react strongly to changes in purchasing power which brings about hyperinflation (Rothbard 2008). This is most certainly accurate in some sense. However, that is certainly not the whole story.

In order for the preferences of the individuals within these nations to be the sole determining factor after inflation and crisis is determined there would have to be levels of homogeneity within these nations. That is to say, that in order for individuals' preferences to be solely relevant there would have to be some sort of homogeneity within the populace. The problem with this idea is that these individuals would have to react in the same way to the increased money supply initially. This explanation is as intellectually as lazy as the explanation

proposed by the proponents of the confidence theory. This explanation too is tantamount saying that the differentiating is that some people just go crazy.

### **Difficulties in Causes and Research**

So the issue is apparent. There has to be some sort of stimulus that causes this shift in preferences. There must be something that causes individuals of certain nations to shift their preferences when in similar circumstances other nations do not. This unknown stimulus or stimuli needs investigating.

For the purpose of investigating these stimuli we need to find a proper instance of hyperinflation that has sufficient data to investigate. The most well know instance of hyperinflation is in Germany between the world wars (Sennholtz 2006). This would be a fantastic source of investigation because of how many nations were in similar circumstances that would be great for comparison (Rothbard 2008). However, when surveying the literature and the data on this matter it becomes apparent that the data is limited. While economists of the time wrote extensively in personal accounts and economic descriptions the data that is available is limited. In addition, the data available serves primarily to explain what hyperinflation does and the portion that does focus on the causes focuses primarily on the obvious. This is where authors describe inflation, crises, and confidence (Rothbard 2008). There is plenty of data leading up to 1913 which is several years before the instance of hyperinflation and plenty of data on the actually years of hyperinflation between 1920 and 1923. However, the gap between these sets of data is problematic for my purposes. These “forumulative” years are important

when looking for causal factors. Another problem with this particular instance is that while there is a great deal of information available certain factors are missing, specifically regarding bank lending.

Luckily as time went on economists and statisticians became more diligent and the data available increased. The most recent instance of hyperinflation is in Zimbabwe (Hanke and Krus). This instance of hyperinflation is perfect for the purposes of investigation. There is a plethora of data available and the country Botswana was in similar circumstances which mean not only can we compare between times, we can also compare between the countries.

Before delving into the data it is important to understand this instance of hyperinflation intimately so that we can guarantee a complete understanding of the data.

### **Zimbabwe before Hyperinflation**

Before 1980 the area we call Zimbabwe now was the unrecognized state of Rhodesia. In this colony the Rhodesian dollar was the official currency of the state. In 1980 the Republic of Zimbabwe gained independence. The Rhodesian dollar was exchanged at par value with the new Zimbabwe dollar (Brett).

Upon gaining its independence, the Republic of Zimbabwe's new national currency was more valuable than the United States dollar. In the early years Zimbabwe experienced significant economic growth. There was significant growth in production specifically in agriculture which was the largest sector in the Zimbabwean economy.

Imperialism had a strong impact on the economy of Zimbabwe. As a colony the land-owners were disproportionately represented. It seemed white foreigners held a majority of the land in Zimbabwe. This was a large political issue which led to an executive response.

The President, Robert Mugabe, began instituting land reform policies that were designed to put the land in the hands of the native black workers as a correction for their colonization. This land reform program came in the form of the Lancaster House Agreement. This served as a ceasefire for the civil war that was happening (Tupy 2008). This amounted to the conversion of plantation like farms to what was agreed to as viable resettlement areas for farmers. The British government provided the money for a large portion of this reform.

This was the start of the land reform in Zimbabwe in this period. The early 1980's were peppered with various acts of congress that meant to put the land in the hands of the native blacks. One such act was the Communal Land Act. This act transferred control over tribal lands to local authorities from their traditional rules and deemed the lands communal areas. Another was the Land Acquisition Act in 1985 which gave government the right to buy land from land owners and distribute it to the landless (Brett).

These acts set precedence for further acts of land redistribution. The Land Acquisition Act was changed to remove the limits that previously limited the government purchase and distribution of land. The changes to the act limited the size of farms and changes the terms for which purchases could occur. This was designed to speed up land reform and it did so successfully. This was increased even further by the government a year later in 1998. The

policy they outlined was called the Land Reform and Resettlement Programme Phase II. What this amounted to was the forced purchase of half of the land owned by whites in Zimbabwe. This was over 50,000 square kilometers of land.

This distribution was the chief cause of the crisis that preceded the Zimbabwe hyperinflation. The individuals who were receiving land often had little to no experience running a farm. These people, who didn't know how to operate a farm, produced less and were less efficient than those who had owned the land previously.

However, this was only the beginning of the crisis that caused the Zimbabwe hyperinflation. While this redistribution was a serious problem eventually the forced purchasing of land became nothing more than the seizing of land. This turn to violence and the actions of the state in defense of these people who were claiming and distributing the land only made things worse (Tupy 2008).

The new owners operated less efficiently and therefore produced less than their white predecessors. The food output in Zimbabwe from 1999 to 2009 dropped 45% and manufacturing output fell 29% ("Zimbabwe: A Worthless Currency" 2008).

The issues in land redistribution were not the only issues that Zimbabwe faced during this time. There was a strong military presence in the Democratic Republic of the Congo and participation in the Second Congo War. Interestingly enough nearly all public employees were receiving increases in salary as well. What this amounts to is a drastic increase in government spending coupled with the monetary inflation needed to finance the military activity.

## **Botswana before Zimbabwe's Hyperinflation**

Zimbabwe's neighbor did not have this same array of problems at least to the degree that Zimbabwe did. Botswana had a host of political conflicts and environmental conflicts but none of them were as significant as those in Zimbabwe. However, there was sufficient conflict when looking at the whole picture to make a comparison (Betts et al). The closeness of their geography guarantees the shouldering of certain problems especially in the conflict in the Democratic Republic of the Congo.

Zimbabwe served primarily in a military fashion. Botswana served a diplomatic role while still building up its national defense. This is one of the burdens that these two countries shared. While Zimbabwe was fighting the war, Botswana was arguably more involved. The United Nations has praised Botswana's leaders for their peacekeeping actions and their roles in preventing conflict in regards to fresh water and land disputes that could have brought about additional violence (Tupy 2008).

This was not the only problem that Botswana faced. The significant droughts stifled agriculture in Botswana. Not only that but these droughts meant that people could not rely on what little surface water they had. They had to use groundwater which erodes the land quickly because Botswana is 75% desert. In addition to this the prevalence of HIV/AIDS is enormous in Botswana to the point where nearly one in four adults have the disease with 24% according to UNAIDS (Betts et al). In addition to this life expectancy was rapidly declining during this time. So while Botswana was better off than Zimbabwe in terms of conflict they were certainly

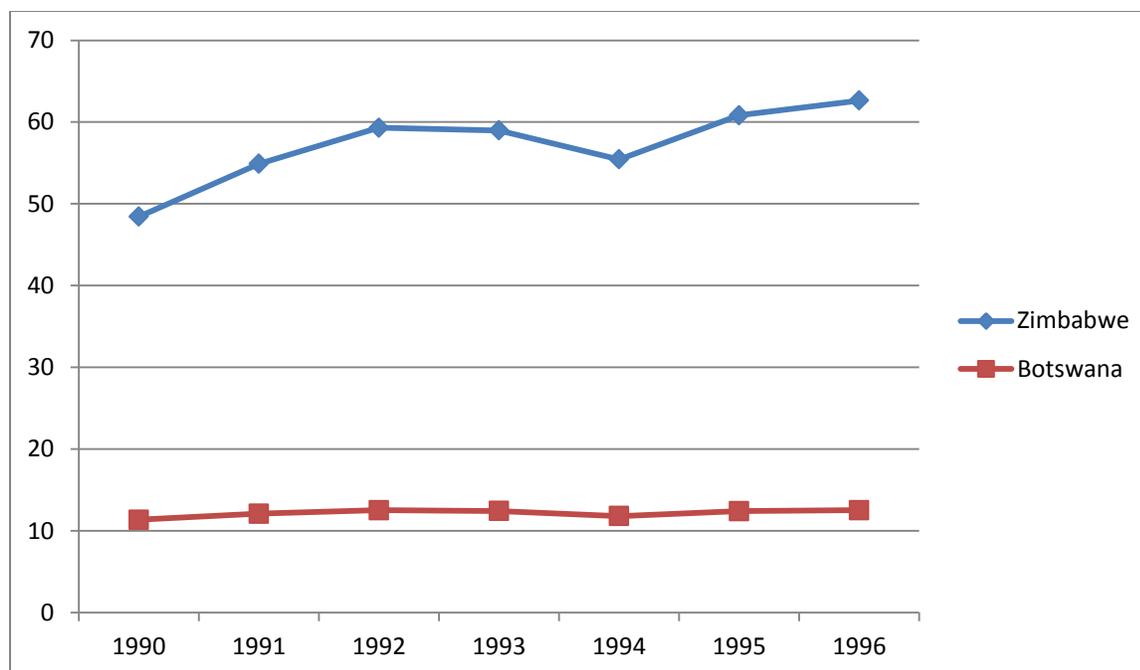
not bereft of conflict themselves. While the comparison between these two countries is not perfect it is appropriate even if there is a possibility of error, especially considering the lack of other options in terms of data completeness.

### **Other Influencing Factors**

So if we endeavor to find factors that influence this crisis of confidence we should begin with things that we know correspond to the original crisis. The original crisis is most often something like war or something that instigates government spending in a way that uses debt financing. To get the best picture of government spending between countries with different sizes the statistic central government debt as a percentage of GDP.

What we expect to see is that Zimbabwe has a higher debt in the years before the hyperinflationary incident. First, Zimbabwe is facing a greater crisis than Botswana so they will naturally be spending more to fund their military action. Second, because we know that Zimbabwe will face hyperinflation we can say in hindsight that they must be spending more because that would influence the velocity of money. That is to say that because we know there will be a crisis of confidence we would therefore predict that the government is spending a lot of money which in periods of inflation would decrease confidence in the value of the currency.

Central Government Debt (% of GDP)

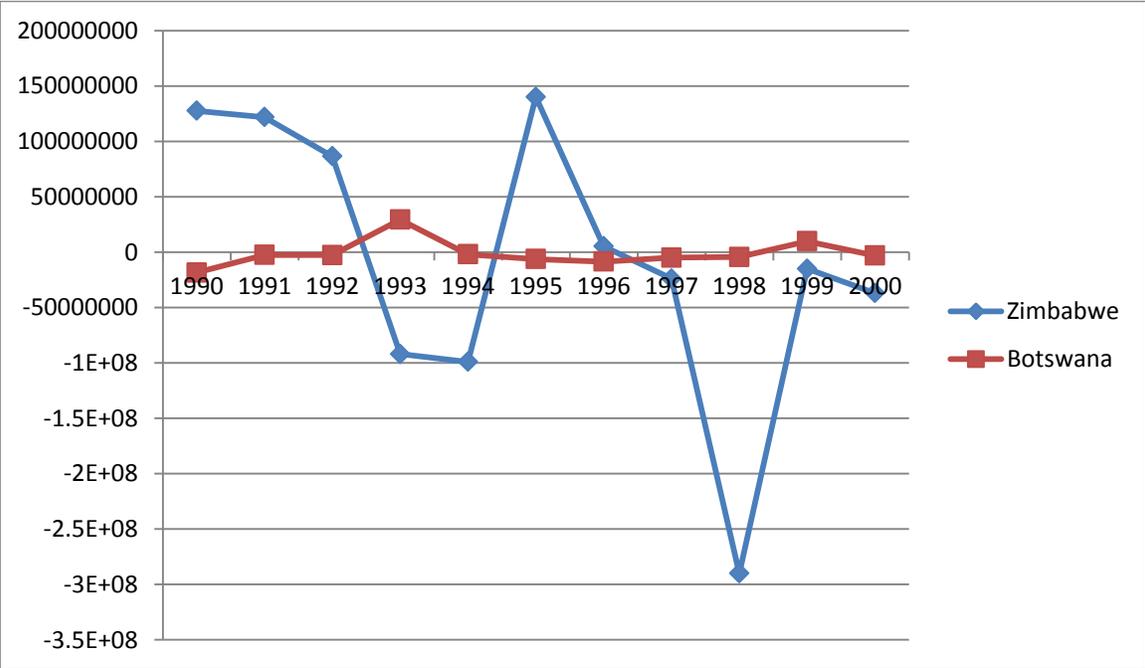


So what this graph shows us is that prior to Zimbabwe's hyperinflation the government of Zimbabwe was spending a lot more money than Botswana when considering the size of the relative economies. What this implies is that this increased spending is increasing the velocity of money which may contribute to the crisis of confidence that brings about hyperinflation. It is important to note that this is not an econometric analysis. There is no causality or correlation being determined. This data serves to provide possible explanations for the complex factors that bring about hyperinflation or more specifically the factors that cause the crisis of confidence that turns inflationary nations hyperinflationary.

Another metric that may be of interest is commercial banks and other lending. This metric indicates the amount of lending coming from commercial banks and other sources. This includes publicly and privately guaranteed loans and private nonguaranteed loans as well as

other private credits. This data will show the amount of money that is being lent in the economies of both countries. We expect that Zimbabwe will be lending more money. They will be lending more money because this means that more money is being spent on consumption which will relate to the crisis of confidence.

Commercial Banks and Other Lending

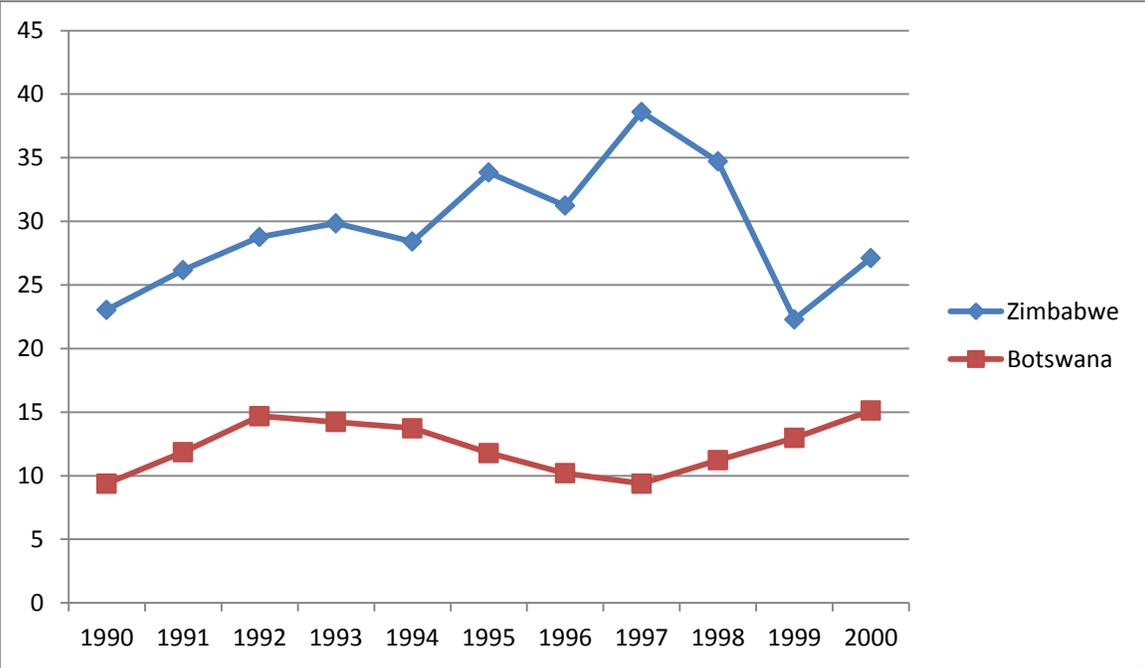


This data is measured in US dollars. What I was expecting was that Zimbabwe would be lending significantly more than Botswana. This is generally accurate. There are periods of time when Botswana is lending more but I think that is more indicative of the tumultuous nature of this time. What we are seeing in Botswana is a normal amount and rate of change in

commercial lending. The data for Zimbabwe is evident of significant interference and economic madness prior to hyperinflation. Perhaps the magnitude of lending is not the issue but rather the change of commercial lending over time.

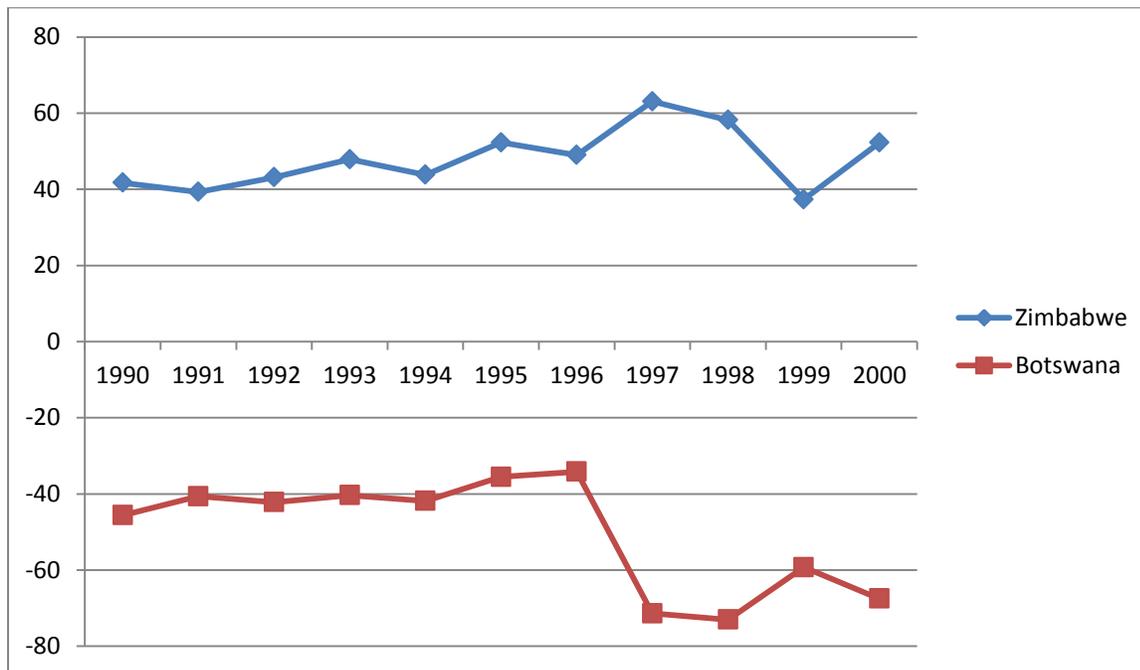
Another metric that would seek to measure generally what commercial lending measures is the domestic credit provided to the private sector as a percentage of GDP. This metric will show is that is a more consistent measure of commercial lending at least in regards to the private sector. We expect to see Zimbabwe lending more to the private sector. This lending means that more money is going towards immediate consumption. The impact during periods of inflation and crisis is that confidence in the currency rapidly declines.

Domestic Credit provided to the Private Sector



Another metric that will coincide with domestic credit to the private sector is domestic credit provided by the banking sector. This should reinforce what the other graph indicated. That being that Zimbabwe is lending more money which may contribute to the crisis of confidence that brings about hyperinflation

Credit Provided by the Banking Sector



So we see generally the same thing as the graph before. We can see that Zimbabwe is directing a lot more money to immediate consumption than Botswana who is saving more. This may be integral to the difference between these two nations.

The four figures used are from data accessed from World Bank. The indicators used correspond to the names of the graphs. This source reports data from a variety of sources as a collection of historic data. The only countries cited are Botswana and Zimbabwe.

## Conclusions

The data indicates that Zimbabwe was indeed lending more money in general towards immediate consumption than Botswana in the years prior to their hyperinflationary incident. It is my hypothesis that this is no accident.

Two factors that are required for hyperinflation to happen are increasing and often accelerating inflation and an increase in the velocity of money. However, many nations experience inflation that is increasing and accelerating, in fact most modern nations do. The other requisite factor is slightly more important. The increase in the velocity of money indicates a crisis of confidence.

The crisis of confidence is the key factor between an inflationary economy and a hyperinflationary one. So when considering indicators of credit expansion the most important one is visibility to individuals. The reason that commercial lending fits this bill better than any other indicator such as interest rate or money stock is that commercial lending is most apparent to individuals. Individuals can see more business enterprise and faster economic growth. This provides them with incentive to use this money for consumption and bulk purchases because they expect prices to rise. It is because of the visible changes to the economy that increases in commercial lending cause that makes it the best precursor to a crisis of confidence.

The literature up until now has generally attributed this crisis of confidence to an arbitrary inclination to hysteria. This explanation is insufficient and could only be truly adopted if every possible causal factor has been shown to be irrelevant. This is not the case.

Commercial lending increases would yield more immediate spending. Because of this, people are more aware of changes in prices and therefore more aware of the increasing rate of inflation. People will therefore react to this and demand to hold less of the currency.

However, this data is not conclusive of causation or even a correlation. What it does provide is an awareness of a possible relationship. The nature of economies especially in crisis is too complex for data to actually indicate a relationship because there could be any number of hidden variables. What we can do with this data is use it to evaluate in any future instances of hyperinflation to check the validity of this particular variable. With more adamant recording of data and more instances of hyperinflation to observe we may be able to determine a relationship in the future.

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