Global bifurcations, credit rationing and recurrent hyperinflations

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Abstract

This paper proposes an alternative explanation to recurrent hyperinflations other than bounded rationality by explicitly considering the global dynamics of an economy with credit market frictions. In this paper we show that hyperinflations are self-generated and are manifestations of the underlying global dynamic properties of an economy with perfect foresight rational agents that face credit rationing. Moreover, we find that economies that are more credit constrained are more likely to experience recurrent hyperinflations.
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1. Introduction

Although the long run relationship between money and prices is a phenomenon that has received a lot of attention by macroeconomists during the last century, the

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[1]I would like to dedicate this paper to the memory of Bruce Smith, a mentor and an inspiring figure in my life.

study of hyperinflations is rather new. One of the first studies on the subject can be attributed to Cagan's (1956) seminal work. He proposes a money demand function based on asset-market considerations in order to study inflation dynamics, the money supply and inflationary finance. He finds that in hyperinflationary periods movements in prices are much greater than movements in real variables.[3]

Within the general equilibrium framework, Sargent (1986) shows that when governments are unable to either reduce their fiscal deficits or finance them through capital, high seignorage is required and high inflation rates are unavoidable. On the other hand, Sargent and Wallace (1987) generate a standard Laffer curve with two stationary rational expectations equilibria where hyperinflations can occur as speculative equilibria converging to the high inflation steady state. Their paper explains how inflation can grow even though seignorage is stable.[4] Similarly, Eckstein and Leiderman (1992) explain the very large inflation rates in Israel with an ever increasing Laffer curve.

Some other work on hyperinflations has incorporated expectations of a monetary reform to explain the behavior of certain economic variables during hyperinflations. Bental and Eckstein (1990) consider an economy where agents know in advance the whole future path of government policies. In particular, agents know the date and composition of any stabilization package which requires the budget to be balanced and keep the price level fixed. In the same spirit, Paal (2000) examines the possibility that pre-stabilization rates of inflation in Hungary after World War II resulted from the anticipation of strict credit controls in the post-stabilization period.

Finally, some authors have explored hyperinflations with learning and moving away from rationality. Auernheimer (1976), and Kiguel (1986) show that in order to obtain a hyperinflationary process one needs to assume adaptive expectations. In other words, within Cagan's framework, large budget deficits can result in hyperinflations only when agents make systematic mistakes in forecasting inflation. More recently, Marcet and Nicolini (2004) construct a general equilibrium model of bounded rational learning to account for the observations of recurrent hyperinflations in the eighties.

To date only models with quasi rational agents are able to generate recurrent hyperinflations. An alternative explanation to recurrent hyperinflations is to consider the global properties of an economy with frictions. The overlapping generation framework is a rich source of interesting dynamics, endogenous cycles, chaos, bifurcations or sunspot equilibria that can help explain recurrent hyperinflations. Within this spirit, Boyd and Smith (1998) explore how the presence of credit market frictions, whose severity is endogenous, affects capital and inflation dynamics. The authors find that if any monetary steady state equilibria exist, there are generally two of them. One of these equilibria has a low capital stock and output level, and it is necessarily a saddle. The other steady state has a high capital stock and output level;

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[3]Households adjust their real balances according to expected inflation.

[4]In the same spirit, Evans and Yarrow (1981) and Bruno and Fisher (1990) interpret hyperinflations as a situation in which the economy converges towards a high inflation steady state along the inflation tax Laffer curve.