The effects of learning and signaling on money demand: 
With an application to heterodox inflation stabilization programs

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Abstract. This paper develops a nonlinear vector autoregression of inflation 
and money growth subject to changes in regime. The regimes are fully char-
acterized by the mean and variance of inflation and are conjectured to be the 
result of alternative government policies. Agents are unable to observe directly 
whether government actions are indeed consistent with the inflation rate tar-
geted as part of a stabilization program. However, as part of their money 
demand decision, agents construct probability inferences regarding the re-
gime. Government announcements are assumed to provide agents with addi-
tional, possibly truthful information regarding the regime.

This specification is estimated using data from the Israeli and Argentine 
high-inflation periods. Results indicate that the successful stabilization 
program implemented in Israel in July 1985 was more credible than either the 
 earlier Israeli attempt in November 1984 or the Argentine programs. Gov-
ernment’s signaling might simplify the agents’ inference problem and in-
crease the speed of their learning but, under certain conditions, it might also 
increase inflation volatility. Welfare gains from a temporary increase in real 
balances might be high enough to induce agents to raise their money demand 
in the short-term even if they are uncertain about the nature of government

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policy and the eventual outcome of the stabilization attempt. Statistically, the model restrictions cannot be rejected at the 1% significance level.

**Key words:** Learning, credibility, government announcements, signaling, inflation, changes in regime, non-linear vector autoregressions, money demand

**JEL classifications:** E31, E63, E65

1. Introduction

This paper estimates a model of Bayesian learning where agents must make inferences about government policy using publicly available data and government announcements. A nonlinear vector autoregression (VAR) of inflation and money growth is constructed where the former is generated by either of four possible regimes [Hamilton (1989)]. The inflation regimes are fully characterized by their mean and variance, and are conjectured to be the result of the possible combinations of two policy tools employed by the government to affect the inflation rate and agents' beliefs, namely (i) fiscal and monetary policies and (ii) government announcements. Money growth and inflation are linked by a money demand function [Cagan (1956)] whereby agents are required to construct inferences about current and future inflation states.

Because agents are unable to observe whether government policies are or are not consistent with the desired lower inflation rate, their inferences take the form of probabilities concerning the regime and are constructed using available observations of inflation and money growth. More precisely, agents employ Bayes' Rule to infer, conditional on the data, the state that has generated the observation of inflation. Since the probabilities are revised in every period as new data becomes available, there is a sense in which agents learn over time the particular policy followed by the government. Importantly, the agent's information set is assumed to include government announcements that provide them with additional, though not necessarily truthful, information regarding the regime.

As a case study, this paper examines the heterodox inflation stabilization programs applied in Israel and Argentina in the 1980s. By design, this approach involves (in addition to restrictive fiscal and monetary policies) a substantial role to government signaling. In particular, the government's announcement of a temporary period of controlled prices, including the ones of labor and foreign exchange, is intended to signal the switch to a new, lower inflation rate to be sustained with changes in fundamentals to be implemented during this phase. Agents are left to infer whether government policies are or are not consistent with the inflation target. For the countries under study, it may have been the case that given insufficient changes in fundamentals, agents correctly inferred that price and wage controls were just masking the effects of high rates of money growth and that high inflation would return once controls were lifted. In this sense the government's pledge and its stabilization program would not have been credible. On the other hand, agents may have inferred on the basis of a temporarily low inflation rate that there had been a substantial reform in government's policies. In this case the stabilization program would have been viewed as credible. One advantage of considering these episodes is