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## A general theory of controllability and expectations anchoring for small-open economies

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#### ABSTRACT

Rational expectations are often used as an argument against policy activism, as they may undermine or neutralize the policymaker's actions. Although this sometimes happens, rational expectations do not always imply policy invariance or ineffectiveness. In fact, in certain circumstances rational expectations can enhance our power to control an economy over time. In those cases, policy announcements can be used to extend the impact of conventional policy instruments. We present a general forward-looking policy framework and use it to provide a formal rationale for testing when policymakers can and cannot expect to be able to manage expectations. To describe the relevance of our results applications are shown for policy design in small-open economies. Those are the cases where domestic policies are at their weakest and our ability to influence expectations most constrained.

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#### 1. Introduction

Since the work of Barro (1974), Sargent and Wallace (1975) and Lucas (1976), rational expectations have been regarded as placing severe limits on what can be achieved in a world of policy conflicts; and as requiring strong policy commitments to get even that far. Rational expectations are often said to imply that such commitments cannot be considered credible and to lead inevitably to Pareto inferior outcomes.

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This argument however does not allow for policymakers who actively engage in managing expectations by making policy announcements, alongside policy interventions, for the express purpose of shifting the expectations path itself.<sup>1</sup> If they can do that, private expectations will be exactly consistent with what the private sector/policymakers expect the outcomes to be; and no one will be required to move off their expected path (make expectation errors) for the policies to work. The literature has often used this idea formally and informally in debates over the feasibility and desirability of trying to anchor inflation expectations for monetary policy, or in arguments over the desirability of publishing interest rate forecasts.<sup>2</sup> It is also an idea in the minds of the policy makers; see, for example, the European Central Bank's concern that long term policies introduced to combat the current financial crisis (greater transparency, new regulation, reduced pro-cyclicality, planned liquidity withdrawals) should have their effects now (Trichet, 2008); equally the announcement of new fiscal stimulus or credit guarantee packages. But what the literature has not done is identify the conditions under which we can expect to be able to manage expectations in this way, and their effect on the scope for policy, as opposed to pointing to the possibility and importance of managing expectations.

Several recent papers highlight the relevance of these questions. Mertens and Ravn (2010) show, in the context of a specific model, that the impact of any fiscal expansion is part the result of anticipation effects and part genuine impact in the sense normally meant by policy multipliers. But how much, in any particular case, is anticipations and how much is genuine causal impact? Our analysis allows us to answer that question for the general case using the partitioned matrix in (7) below; that is, for any model and without additional estimation uncertainties. In a similar vein, Eusepi and Preston (2010) show that different communication strategies matter in this context – mainly because different strategies have different short and long term effects. Our dynamic analysis allows the policymaker to pick out which strategy, if communicated properly, would have an impact and at which horizon(s) – again for a general model without the parameter restrictions of the original paper; and, conversely, by showing what parameter restrictions must not hold if any communication is to be used successfully. Somewhat more indirectly, Canova and Gambetti (2010) show that expectations can and do get anchored in the sense that their influence does not vary over time even if inflation is changing. But the question remains, how can that happen and what expectations are implied?

This paper investigates the circumstances under which policy announcements, if properly communicated, can be used to supplement or extend the impact of conventional policy instruments. The idea is that rational expectations may, in certain cases, enhance the power to control an economy over time. Hence, contrary to conventional wisdom, rational expectations may, but do not always, neutralize the policymaker's action.

Specifically, we consider the design of economic policy within a general rational expectations framework and show that policy invariance can only arise in specific cases (where the unit root or rank conditions specified below fail). In all other cases policy announcements may be used to help steer economic behavior, and certain targets will become reachable in reduced time. The rationale for this result can be understood by using the concept of controllability, introduced in the classical theory of economic policy by Tinbergen (1952), and its dynamic extensions. If a policymaker is able to achieve any desired vector of targets given some exogenous expectations, then he will also be able to do it with endogenous expectations.<sup>3</sup> If nothing else, he could exploit the endogenous expectations to achieve his targets in a shorter time.

To make use of this property of rational expectations, however, another ingredient must be present. The policymakers must be able to communicate, in a clear and effective manner, the intent and purpose

<sup>&</sup>lt;sup>1</sup> By "actively manage" we make a distinction between cases where we study the outcomes and stability of rationally expected policies *given* the behavior of the system (the conventional case: Blanchard and Khan, 1980); and the case where the policy authorities try to influence the behavior of the system itself. In this paper, we are concerned with the latter case. The distinction itself was made and analyzed in Hughes Hallett et al. (2010).

<sup>&</sup>lt;sup>2</sup> See Woodford (2005), Blinder et al. (2008) or Rudebusch and Williams (2008); and more formal models will be found in Soderlind (1999), Woodford (2003).

<sup>&</sup>lt;sup>3</sup> Like most other papers with policy announcements, including those just cited, this paper supposes a single policymaker. The extension to multiple policymakers is set out in Acocella et al. (2009).

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