The Harberger−Laursen−Metzler effect under capital market imperfections

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Abstract

This paper re-examines the effects of a permanent terms-of-trade change on a dynamic small open economy facing an imperfect world capital market as studied in Obstfeld [1982. Aggregate spending and the terms of trade: is there a Laursen−Metzler effect? Quarterly Journal of Economics 97, 251−270], which assumes that the economy faces a downward-sloping bond curve. The novelty of the present paper is that a saddle-path stable steady state comes into existence under the assumption that households' subjective discount rate is a *decreasing* function of instantaneous utility. The Harberger−Laursen−Metzler (HLM) effect is shown to hold unambiguously, i.e., an unanticipated permanent terms-of-trade deterioration leads to an increase in aggregate expenditure and a current account deficit. This result is in stark contrast to those obtained in Obstfeld [1982. Aggregate spending and the terms of trade: is there a Laursen−Metzler effect? Quarterly Journal of Economics 97, 251−270] and many other studies in the literature.
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1. Introduction

In his seminal work, Obstfeld (1982) shows, in a framework based on intertemporal optimizing behavior of infinitely lived forward-looking agents, that an unanticipated permanent terms-of-trade deterioration leads to a reduction in aggregate expenditure, a rise in savings, and thus

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a current account surplus. This contradicts what is known as the Harberger–Laursen–Metzler effect. According to the Keynesian analysis of the effects of terms-of-trade shocks by Laursen and Metzler (1950) and Harberger (1950), an adverse shock on the terms-of-trade causes a rise in spending, a decline in saving, and a current account deficit.

Obstfeld's paper and the work by Svensson and Razin (1983)[1] have stimulated a substantial literature on examining the effects of a terms-of-trade change in dynamic optimizing frameworks.[2] While Obstfeld studies both the case with perfect capital mobility and the case with an imperfect capital market, subsequent researchers mainly focus on the case with perfect capital mobility. One reason for this, we believe, is that in the same paper Obstfeld demonstrates that his result is robust to the case with an imperfect capital market. It seems, therefore, that appending the feature of imperfect capital mobility, albeit more realistically, could only complicate the analysis without providing additional significant insights.[3]

Obstfeld uses the Uzawa (1968) utility function with the subjective discount rate being an increasing function of instantaneous utility. This assumption is crucial for his results and, under perfect capital mobility, is required for steady-state stability for an endowment-type, small open economy with a continuum of infinitely lived representative households.[4] In the extension to the case with an imperfect capital market, such an assumption is maintained in Obstfeld's paper.

The assumption of an increasing subjective discount rate, on the other hand, is a controversial one, and has been subject to criticism on intuitive grounds. It implies that the rich are more impatient. Many argue that this assumption is unappealing, and indeed Koopmans (1986) believed that the opposite case — decreasing subjective discount rate — should be a "normal case". Persson and Svensson (1985, p. 45) wrote that "the infinite horizon analysis in Obstfeld (1982) and Svensson and Razin (1983) requires that the rate of time preference increase in wealth for stability of the steady state, a restriction that is arbitrary and even counterintuitive".[5]

Using the deterministic perfect-foresight framework, the present paper revisits the issue of the effects of a permanent terms-of-trade change on the economy for the case with an imperfect capital market, where the economy faces a downward-sloping bond curve (or equivalently, an upward-sloping debt curve). This is also the case considered in Obstfeld (1982). To the contrary, the present paper shows that stable equilibrium dynamics exist under the assumption that the discount rate is a *decreasing* function of instantaneous utility (or consumption). Under the stability conditions, the Harberger–Laursen–Metzler (HLM) effect holds unambiguously, that is, an unanticipated permanent terms-of-trade deterioration leads to an increase in aggregate expenditure and a current account deficit. This result is consistent with those obtained in Laursen and Metzler (1950) and Harberger (1950) in static frameworks, and essentially

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[1] Svensson and Razin (1983) start off from a two-period model and then move to an infinite-horizon model.

[2] Examples of the papers in the literature include Persson and Svensson (1985), Bean (1986), Matsuyama (1987, 1988), Sen and Turnovsky (1989), Mansoorian (1993, 1998), Servén (1999), and Ikeda (2001). See also Backus (1993), Backus et al. (1994), and Mendoza (1992, 1995), Otto (2003) for analyses using stochastic dynamic general equilibrium models. There have been mounting empirical evidences that support the existence of an HLM effect — see a survey on empirical studies in Otto (2003, Section 2).

[3] Obstfeld (pp. 263–264) wrote that "this extension adds to the complexity as well as the realism of our analysis".

[4] With a constant rate of time preference, non-degenerated, stable dynamics can also occur by introducing other sluggish state variable(s) to the system. For example, Mansoorian (1993) introduces habit persistence, while Sen and Turnovsky (1989) allow capital accumulation. However, in those models there exists dependence of steady state on initial conditions.

[5] However, we refer to Epstein (1987) and Obstfeld (1990) for supportive arguments for the assumption of increasing rate of time preference.