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Fiscal policy in the US: Sustainable after all?

Pierre Aldama^a, Jérôme Creel^{b,*}^a Paris School of Economics, Université Paris 1 and Sciences Po, OFCE, France^b Sciences Po, OFCE, and ESCP Europe, France

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ABSTRACT

The sustainability of US public debt has been widely discussed since the Great Recession. Using annual data since 1940, we estimate and compare different specifications of fiscal rules. Estimates of constant-parameter fiscal rules show no evidence of sustainability. This may be due to the instability of government's behaviour over time. Thus, we estimate a Markov-switching fiscal rule in order to identify periods of unsustainable and sustainable fiscal policies. First, we show that the government stabilizes public debt only periodically. Second, during these periods, the government's reaction is sufficiently tight to stabilize public debt over the entire horizon. We conclude that a relatively short-lived but tight fiscal contraction can be sufficient to ensure long-run US debt sustainability.

1. Introduction

Following the Global Financial Crisis and the Great Recession, countercyclical fiscal policies led to substantial increases in public debt in most OECD countries. It raised concerns about fiscal sustainability and a debate arose between [Auerbach and Gorodnichenko \(2017\)](#), [Elmendorf and Sheiner \(2017\)](#), on the one hand, and [Mehrotra \(2017\)](#) on the other hand on optimal future fiscal policy in this respect. While the former argued that a fiscal stimulus would not deteriorate fiscal sustainability despite high debt levels, the latter argued for a reduction of public debt because of high debt levels. [Auerbach and Gorodnichenko \(2017\)](#) use local projections on a panel of OECD countries to compute the reactions of a set of macro variables to government spending shocks. Following their econometric exercise, they show that fiscal shocks do not produce adverse effects on measures of fiscal sustainability like interest rates, CDS spreads, and the debt to GDP ratio. [Mehrotra \(2017\)](#) argues that under the secular stagnation scenario where the real interest rate falls short of the real GDP growth rate, higher levels of debt “allow the government to raise real resources without resorting to taxation”. Meanwhile, he also argues on a “moderate probability” that the real interest rate goes beyond the real growth rate over a 5–10-year horizon. Consequently, he recommends austerity measures because he finds that the tax maximizing level of public debt is lower than the actual average level since 1870. In contrast with [Mehrotra \(2017\)](#), [Elmendorf and Sheiner \(2017\)](#) expect

low interest rates in the US over a long period and despite their first sentence: “The federal budget is on an unsustainable path”, they argue for larger public debt and public investment in the US in the short run, hence for a postponement of deficit reduction measures.

The aim of this paper is to assess fiscal sustainability in the US under two different regimes. The first one will show a positive response of the government's primary surplus to growing debt, whereas the second regime will show no response at all, or even a negative one. As the previous debate recalls, fiscal sustainability and fiscal policy are interconnected. If sustainability is at stake as [Mehrotra \(2017\)](#) reports, fiscal contraction is the optimal policy. Otherwise, public debt will be unsustainable. On the contrary, fiscal expansion can be the optimal policy when higher growth is possible and sustainability is granted as [Auerbach and Gorodnichenko \(2017\)](#) argue. The existence of sustainable and unsustainable fiscal regimes has been recently studied by [Cassou et al. \(2017\)](#) who report frequent shifts from one regime to another that they relate to the economic situation. Under weak economic conditions, fiscal sustainability is not fulfilled whereas it is when economic conditions are strong.

Our contribution to the existing literature is to link periodic fiscal regimes, either sustainable or unsustainable, with a *global* (or long-run) indicator of fiscal sustainability. Hence we do not only identify regime switches but we also implement an empirical test of the global fiscal sustainability in the US. As a matter of fact, the existence of periodic

* Corresponding author. OFCE, 10, place de Catalogne, 75014 Paris, France.

E-mail addresses: pierre.aldama@univ-paris1.fr (P. Aldama), jerome.creel@sciencespo.fr (J. Creel).<https://doi.org/10.1016/j.econmod.2018.03.017>

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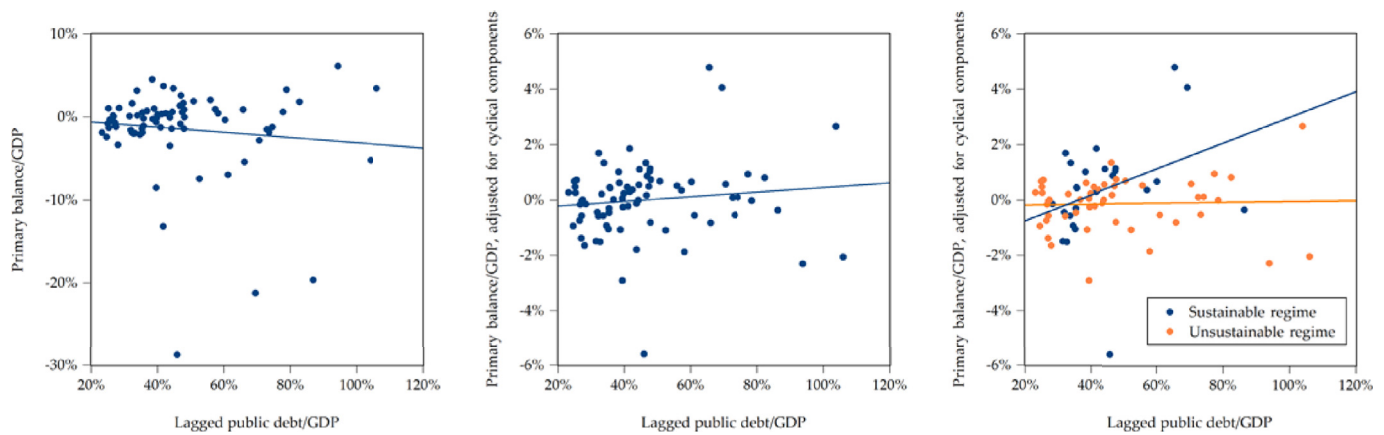


Fig. 1. Surplus-debt correlations (United States, 1940–2016). Note: The left panel plots the simple correlation between primary surplus-to-GDP and lagged debt-to-GDP. The center panel plots the correlation between the primary surplus adjusted for cyclical components (output gap and cyclical spending), using a simple linear regression as explained in footnote 1. Finally, the right panel plots correlations of primary surplus (adjusted for cyclical components) depending on the two fiscal regimes identified in this paper, using Markov-Switching techniques. Finally, for each panel, we display an OLS regression line.

Source: Office of Management and Budget, authors' calculations.

sustainable or unsustainable fiscal regimes does not inform about the global assessment of fiscal sustainability. Once a periodic unsustainable regime is identified, the following question is usually raised: how long can the necessary fiscal adjustment be delayed without threatening the global sustainability of public debt? This is typically the question that [Elmendorf and Sheiner \(2017\)](#) deal with. Despite short-run fiscal unsustainability, the economic situation may make it possible to raise public debt further and improve long-run debt sustainability, they argue. In a sustainable fiscal regime, the important question pertaining to global sustainability is: are the properties of the regime in terms of the reaction of fiscal policy towards public debt and/or in terms of frequency sufficient to ensure the long-run sustainability of public debt? Actually if the government is reacting only weakly and/or very infrequently towards debt variations, the debt-to-GDP ratio may not decline and a new crisis may push debt into unsustainable territories in the long run.

This paper addresses the properties of global sustainability and gives an answer to the previous questions. We apply to US annual data from 1940 to 2016 the Regime-Switching test developed in a companion paper. [Aldama and Creel \(2017\)](#) extend [Bohn \(1998\)](#)'s fiscal policy feedback rule to the regime-switching case and derive conditions under which fiscal policy is *globally* sustainable while allowing for persistent unsustainable regimes. These conditions are based on the properties of fiscal rules under the two regimes.

We follow a two-step empirical strategy. First, we estimate constant-parameter fiscal policy rules. We also control for non-linearities using a quadratic and cubic specifications of Bohn's fiscal rule. These baseline regressions do not give significant evidence of a sustainable fiscal regime, i.e. a strictly and significant positive response of primary balance to lagged public debt. Still, these results may be triggered by the fundamental instability in the relationship between primary surplus and lagged public debt identified by [Bohn \(1998\)](#). [Fig. 1](#) gives a snapshot of this instability. It shows the surplus-debt correlations without and with adjustment for cyclical components.¹ When considering the first two panels in [Fig. 1](#), it appears that the cyclical adjustment suggested by Bohn is not sufficient to exhibit a strong and significant positive correlation between primary surplus and lagged debt. In the third panel, we split our

¹ We follow [Bohn \(1998\)](#) and we use an OLS regression of primary balance against an intercept, output gap x_t and cyclical government spending \hat{g}_t . Then, we extract the estimated residuals \hat{v}_t : $\hat{v}_t = s_t - \hat{\alpha} - \hat{\alpha}_x x_t + \hat{\alpha}_g \hat{g}_t$ and interpret it as the primary surplus-to-GDP, adjusted for the cyclical components of fiscal policy.

sample in two, using the two fiscal regimes identified in this paper and show that one regime displays a strong positive surplus-debt correlation while the other displays a non-significant one.

Hence, in a second-step, we estimate a two-state Markov-switching fiscal policy rule in order to account for differentiated responses of primary surplus to public debt. We find significant evidence of a sustainable regime that displays a positive and strongly significant feedback effect of public debt. In contrast, the unsustainable regime is characterized by a non-significant feedback effect. Drawing on the estimated Markov-switching fiscal rule, we directly assess the global sustainability conditions developed in [Aldama and Creel \(2017\)](#). Results indicate that US fiscal policy has been globally sustainable, despite persistent unsustainable fiscal regimes.

The paper is organized as follows. Section 2 reviews the literature. Section 3 presents the paper's methodological framework and describes the dataset. Section 4 presents the empirical results. Section 5 draws policy implications from the analysis. Section 6 concludes.

2. Related literature

A first approach to fiscal sustainability consists in testing for unit-roots and stationarity or for cointegration relations between fiscal variables. This approach abstracts from an explicit modelling of fiscal policy behaviour. Seminal contributions are [Hamilton and Flavin \(1986\)](#), [Wilcox \(1989\)](#), [Trehan and Walsh \(1988, 1991\)](#) and [Quintos \(1995\)](#). More recently, [Afonso and Jalles \(2016\)](#) compute panel unit-root tests and cointegration tests on revenues, spending, primary deficits and debts of a group of OECD countries. They find that public debts are not sustainable. [Chen \(2016\)](#) achieves an opposite conclusion on the US. He also studies nonlinearities in the relationship between fiscal instruments which are either related to the business cycles or to changes in the fiscal legislation.² [Chen \(2016\)](#) concludes that the higher public spending the lower the sustainability of US public finances.

Another way of dealing with fiscal sustainability hinges on the dynamic properties of fiscal shocks on real GDP and measures of fiscal sustainability (debt-to-GDP ratio, short-term and long-term interest rates, CDS spreads, real GDP and inflation). In this respect, [Auerbach and Gorodnichenko \(2017\)](#) study the asymmetric and nonlinear effects of fiscal policy shocks during expansions or recessions and in a low-debt

² [Chen \(2016\)](#) argues that a change in the debt ceiling may well change the evolution of tax policy or that of public spending.

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