



What causes changes in the effects of fiscal policy? A case study of Japan



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ABSTRACT

In the past two decades, the Japanese government has spent a considerable amount of money to counteract the severe recessions that have recurred since the early 1990s. Numerous studies have pointed out that the effects of these expenditures have diminished since around the 1990s. However, none of these studies has statistically explored the reasons for this diminution, which they implicitly or explicitly mention. The purpose of this study is to statistically investigate these reasons, using a threshold vector autoregression (VAR) in which the causes pointed out in the literature are adopted as the threshold. If the null hypothesis that the estimated parameters are equal under each regime is rejected, we can conclude that a given cause does affect the macroeconomic structure and, in turn, the fiscal policy effects. We then estimate the impulse response functions in both sample periods, as constructed on the basis of threshold estimates, and compare the effects of fiscal policy in each period.

The following are the main results of the study. First, we found that the diffusion index of the attitudes of financial institutions toward lending and the yearly change in the annual average of the quarterly ratios of the structural primary budget balance to potential GDP significantly reject the null hypothesis; therefore, we concluded that these variables have a definite impact on fiscal expansion effects. Second, the resulting impulse response functions show that the effects are traditional, although there are some notable differences. In particular, when banks' attitude toward lending is tight and the financial condition of the government is bad, the demand-enhancing effects of government expenditure should be considered weak. In this regard, the traditional accelerator effects of private investment, the existence of liquidity-constrained households, and non-Keynesian effects are key operative concepts.

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1. Introduction

In the past two decades, the Japanese government has spent a considerable amount of money to counteract the recurring and severe recessions that have occurred since the early 1990s, and there has been much discussion of the effects of this fiscal expansion. Although the resulting conclusions remain controversial, almost all studies have found that the effects of fiscal policy are weakening, and that the fiscal multiplier has decreased since the mid- to late 1990s. For example, EPA (1998) have identified several possible reasons for this weakening, which include the following: breaks in the feedback loop from existing production to expected production via investment and profits, adjustments to the excess physical stock, weakened effectiveness of capital stock, balance sheet adjustments, declining asset markets, and weak

prospects for economic growth, among others. Studies have also focused on the non-Keynesian effects of huge budget deficits, which bring about a decrease in private consumption (Kawade et al., 2004) and in employment (Miyazaki, 2010). In addition, Kamoi and Tachibanaki (2001) showed that public investments directly replaced private investments after the mid-1980s.¹

As mentioned above, numerous studies have pointed out that fiscal policy effects declined after the mid- to late 1990s; however, none of these studies have statistically tested the relationship between the effects and the causes that they implicitly or explicitly mention. The methodology of these studies is simply to divide the entire sample into two periods—before and after the mid-1990s—and

¹ As in other studies, Kitaura et al. (2005) discussed the same effects of crowding-out of private investment; however, they also pointed out the possibility that these results simply reflect an adverse relationship in which fiscal expansion was undertaken in order to offset a decrease in private investment. For a study that insists that the multiplier effect does not decrease in a more apparent manner, see Hori and Ito (2002).

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then speculate upon the causes by comparing the shape of the impulse response functions of VAR for these two periods.

By using a new methodology, this paper analyzes this relationship. We statistically test the relationship by using a threshold VAR in which the causes mentioned in the literature are adopted as the threshold. If we reject the null hypothesis, defined by each of the selected threshold variables, that the estimated parameters in a VAR are equal under each regime, we can say that a given cause does affect the macroeconomic structure and, in turn, the fiscal policy effects. Next, we estimate the impulse response functions for both sample periods, as constructed according to the cause estimates, and compare the fiscal policy effects in each regime.²

Our findings are as follows. The diffusion index of the attitudes of financial institutions toward lending and the yearly change in the annual average of the quarterly ratios of structural primary budget balance to potential GDP significantly reject the null hypothesis. Therefore, we concluded that these variables have a definite impact on fiscal expansion effects. Then, estimating the impulse response functions for both sample periods, we found the demand-enhancing effects of government expenditure and tax reduction to be weak when these two indices were in bad situation, through the traditional accelerator effects of private investment, the effects of liquidity-constrained on households, and the non-Keynesian effects on private consumption.

This paper is organized in the following manner. In Section 2, we review Japanese economic countermeasures after the asset price bubble burst in the early 1990s. Section 3 explains the statistical methodology and data, drawing comparisons with the previous literature, and Section 4 discusses the test results and derived impulse response functions. Finally, Section 5 summarizes our findings and concludes the paper.

2. A brief history of fiscal stimuli after the bubble burst in the early 1990s

The in-depth analyses conducted by Bayoumi and Collins (2000) and Ihori (2006) indicate that the asset price bubble in Japan burst in the early 1990s. In order to overcome this enormous setback, the Government of Japan initiated a process of fiscal expansion in the form of economic countermeasures (Table 1 and Fig. 1).

The first step involved the “Emergency Economic Countermeasures” under Prime Minister Kiichi Miyazawa, framed on March 31, 1992.³ This countermeasure was not accompanied by a supplementary budget, but public works projects were front-loaded and the prime minister officially suggested the possibility of additional measures. In fact, the prime minister added two measures with supplementary budgets, which accounted for a total of ¥24.9 trillion. Although the government expected that these measures would be effective, the problems of the economy were further aggravated and three additional measures were required until 1995. These fiscal stimuli rapidly worsened the Japanese *budgetary* situation, and it became essential in 1996 to issue deficit-covering government bonds, which were not backed by any funds or measures for redemption, such as planned tax hikes in the future.

Although the economic strain was expected to be prolonged, the economy did begin to recover in 1996. With this improvement,

² Although applying threshold VAR for studies on Japanese fiscal policy is relatively new, this method is becoming popular. Consider, for example, Choi and Devereux (2006), Afonso et al. (2011), and Auerbach and Gorodnichenko (2012).

³ Since this measure was not accompanied by a supplementary budget, it is not presented in Table 1.

Table 1
Economic countermeasures after the bubble burst in Japan.

Economic packages	P.M.	Final determination	Total amount
Comprehensive Economic Measures	Miyazawa	8/28/1992	10.7
Comprehensive Economic Measures	Miyazawa	4/13/1993	13.2
Emergency Economic Countermeasures	Hosokawa	9/16/1993	6
Comprehensive Economic Measures	Hosokawa	2/8/1994	15.25
Emergency Measures for Economy and Appreciation of Yen	Murayama	4/14/1994	7
Economic Countermeasures	Murayama	9/20/1995	14.22
Comprehensive Economic Measures	Hashimoto	4/24/1998	16
Emergency Economic Package	Obuchi	11/16/1998	23
Measures for the Rebirth of the Japanese Economy	Obuchi	11/11/1999	17
Policy Package for New Economic Development Measures for the Rebirth of Japan	Mori	10/19/2000	11
Front-Loaded Reform Program	Koizumi	10/26/2001	5.8
Immediate Economic Action Package	Koizumi	12/14/2001	4.1
Program to Accelerate Reforms	Koizumi	12/12/2002	4.4
Comprehensive Immediate Policy Package—Easing Public Anxiety	Fukuda	8/29/2008	11.5
Measures to Counter Difficulties in People's Daily Lives	Aso	10/30/2008	26.9
Countermeasures to Address the Economic Crisis	Aso	12/19/2009	37
Policy Package to Address Economic Crisis	Aso	4/10/2009	56.8
Emergency Economic Countermeasures for Future Growth and Security	Hatoyama	12/8/2009	24.4
The Three-Step Economic Measures for the Realization of the New Growth Strategy—Emergent Action to Currency Appreciation and Deflation	Kan	9/10/2010	9.8
Comprehensive Emergency Economic Measures in Response to Yen Appreciation and Deflation—Step 2 toward the Realization of the New Growth Strategy—	Kan	10/8/2010	21.1
Comprehensive Package Responding to the Yen Appreciation	Noda	10/21/2011	23.6

Source: Nakao (2002) and the website of the Cabinet Office of Japan (<http://www5.cao.go.jp/keizai/index-e.html>, last accessed 10.04.12).

We obtained English names of the measures directly from the Cabinet Office.

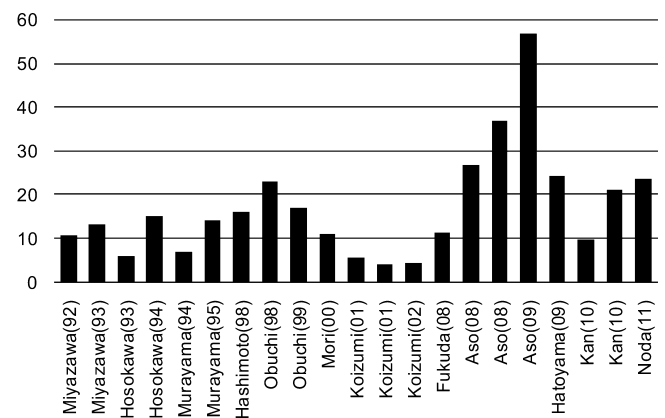


Fig. 1. Economic Countermeasures after the Bubble Burst in Japan. (total amount, trillions of yen)

Source: Nakao (2002) and the website of the Cabinet Office of Japan (<http://www5.cao.go.jp/keizai/index-e.html>, last accessed 10.01.12). Note 1: The amount includes financial support given to the private sector, such as credit guarantees. Note 2: The eighth of Obuchi (98) includes a tax cut of 6 trillion. Note 3: The sixteenth of the second Aso (08) includes an additional 5 trillion, which has already been counted in the last measure of the first Aso (08).

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