Is Alesina’s Argument on the Tax-Spending Mix in Fiscal Consolidation Applicable to Japan?*

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Abstract

This paper examines whether Alesina’s argument on the best mix of tax increases and spending cuts in fiscal consolidation is applicable to Japan. Alesina and his coauthors question the effectiveness of fiscal consolidation mainly relying on tax increases based on the mechanism that (1) public sector wage cuts lead to a private sector wage decrease and stimulate corporate investment, (2) an increase of wage tax and social contribution raises labor costs, and (3) governments can gain more public confidence in their fiscal consolidation by cutting public sector wages and transfer payment programs than by increasing taxes because the former measure is politically more difficult. However, their argument is not applicable to Japan as follows: (1) in Japan, public sector wages are determined in accordance with private sector wages under the system of recommendation by the National Personnel Authority, while the impact of public sector wages on private sector wages is limited under the company-specific labor union system. We confirm this point through the examination of Granger causality based on time series data on public sector wages and private sector wages as reported by the National Personnel Authority. (2) The comprehensive reform of social security and tax systems is intended to curb an increase in social insurance premiums that directly affects labor costs by raising the consumption tax. (3) In Japan, political opposition to a consumption tax increase is stronger. It would be very problematic to oppose an early implementation of consumption tax increases based on Alesina’s arguments without adequately examining whether the underlying factors of the argument are applicable to Japan.

Keywords: Budget deficit, Public sector wage
JEL Classification: E62, H62, J45

I. Introduction

As Japan has the world’s largest government debt, the need for rapid fiscal consolidation is imminent. The Japanese government is implementing a comprehensive reform of social

* The author would like to thank Tomomi Miyazaki (Kobe University), Keigo Kameda (Kwansai Gakuen University), the participants at the 69th Annual Meeting of Japanese Institute of Public Finance, the 2013 spring meeting of Japanese Economic Association and the discussion meeting of Financial Review for their valuable comments. Any errors in this paper are the author’s alone.
security and the tax system including the consumption tax increase. However, some economists and politicians, including Takenaka (2011),¹ argue against fiscal consolidation relying mainly on the consumption tax increase using the argument of Professor Alesina about the best mix of tax increases and spending cuts, although what they often attribute to Alesina is not part of Alesina’s argument.²

However, there is critical discussion of Alesina’s argument on the best mix of tax increase-spending cuts in fiscal consolidation, such as IMF (2010) and Abbas et al. (2011). Further, it is questionable whether the mechanisms supposed by Alesina’s argument can be applied to the Japanese economy.

In this article, we explain Alesina’s argument on the tax-spending mix in fiscal consolidations and related discussion briefly. We will consider whether the mechanisms supposed in Alesina’s argument are applicable to the Japanese economy or not. In the analysis, we will conduct the time series analysis of public sector wages and private sector wages in Japan. Our conclusion is that those mechanisms do not work in Japan. We should not follow the opinions against further consumption tax increase referring to Alesina’s argument on the tax spending mix in fiscal consolidation.

II. Alesina’s Argument on the Tax Spending Mix in Fiscal Consolidation

II-1. Findings of Alesina and his Coauthors

Alesina and Perotti (1996) define the periods of “tight fiscal policy” (or “fiscal adjustment”) in 20 OECD countries (including Japan) from 1960 to 1994. The basic definition of a period of “tight fiscal policy” is a year when the BFI falls by more than 1.5% of GDP or a period of two consecutive years in which the BFI falls by at least 1.25% in both years (Definition 1 in Alesina and Perotti (1996)). The BFI is a cyclically adjusted primary budget deficit in accordance with the method of Blanchard (1993). Also, they define a period of tight fiscal policy as “successful” if one of the two following conditions applies: (a) in 3 years

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¹ For example, Takenaka (2011) argues that “the countries whose fiscal consolidations starting from tax increase always fail (Takenaka (2011), p.161),” and Professor Alesina derives a ratio called “Alesina’s golden rule” from the successful fiscal consolidation.

However, some of their quotations are incorrect.

² First, while Alesina and his coauthors analyze the mix of tax increase and spending cuts, they do not argue about the timing of tax increase and spending cuts. In fact, the fiscal adjustments they analyze usually include both tax increase and spending cuts in the same fiscal adjustment plan. So, the explanation by Takenaka (2011) about the order of tax increase measures and spending cut measures is incorrectly attributed to Alesina.

Second, while the phrase “Alesina’s golden rule” is often used in Japan, Alesina and his coauthors did not use any such phrase. In the discussion of fiscal adjustments among economists, the “golden rule” is a fiscal policy rule so the effect that government bonds can be issued only for the government’s capital investment. This type of “golden rule” has already existed in the Japanese Public Finance Act since 1947. So, it is very strange to call for the introduction of such a “golden rule” to Japanese fiscal policy.
after the tight period the ratio of cyclically adjusted primary deficit to GDP is on average at least two percentage points lower than the ratio in the last year of the tight period; (b) 3 years after the last year of the tight period the debt to GDP ratio is five percentage points lower than the ratio in the last year of the tight period (Definition 2 in Alesina and Perotti (1996)).

Then, they check whether successful fiscal adjustments were achieved mainly by spending cuts or revenue increasing measures. They find that 73% of successful fiscal consolidations were achieved mainly by spending cuts, while 44% of unsuccessful fiscal adjustments were achieved mainly by revenue-increasing measures. While only one fifth of the spending cuts of successful fiscal adjustments rely on the reduction of public investment, two thirds of the spending cuts of unsuccessful fiscal adjustments rely on the reduction of public investment. Further, the reduction of transfer payments and public sector wages is 1.2% of GDP in successful fiscal adjustments, while it is less than 0.2% in unsuccessful fiscal adjustments.

Using newer data from 1970 to 2007, Alesina and Ardagna (2010) derive a similar conclusion, with a slightly different definition: a period of fiscal adjustment is a year in which the cyclically adjusted primary balance improves by at least 1.5% of GDP. These include Japanese fiscal adjustments in 1984, 1999, 2001 and 2006 (Table A.1 in Alesina and Ardagna [2010]). Among those fiscal adjustments, an episode of fiscal adjustment is “expansionary” if the average GDP growth rate, as opposed to the G7 average (weighted by GDP weights), in the first period of the episode and in the two years after is greater than the value of the 75\textsuperscript{th} percentile of the same variable empirical density in all episodes of fiscal adjustment. A period of fiscal adjustment is successful if the cumulative reduction of the debt to GDP ratio three years after the beginning of a fiscal adjustment is greater than 4.5%. There are 17 periods of successful fiscal adjustments. There were no successful or expansionary fiscal adjustments in Japan.

Figure 1 shows the ratio of spending cuts and revenue-increasing measures in successful fiscal adjustments, non-successful fiscal adjustments, expansionary fiscal adjustments, and non-expansionary fiscal adjustments. The ratio of spending cuts is 67.44% in successful fiscal adjustments, while it is 56.02 % in expansionary fiscal adjustments. On the other hand, it is 38.86% in successful fiscal adjustments, while it is 37.33% in expansionary fiscal adjustments. Based on these results, Alesina (2010) concludes that fiscal adjustments mainly based on spending cuts have a greater possibility of success.

II-2. Mechanisms behind Alesina’s Argument

In ascertaining how applicable Alesina’s argument is to Japan, it is essential to know what kinds of mechanisms make fiscal adjustments relying mainly on spending cuts more successful rather than fiscal adjustments relying mainly on revenue-increasing measures. In conventional Keynesian models, the multiplier of government spending is larger than the multiplier of tax cuts since a part of tax cuts will be saved. From conventional Keynesian models, negative macroeconomic effects of fiscal adjustments based on spending cuts should
be larger than those of fiscal adjustments based on the same amount of tax increase. Thus, in order to justify Alesina’s argument, some non-Keynesian explanation is necessary.

One possible explanation is that the lower possibility of a fiscal crisis due to fiscal adjustments will (a) reduce precautionary savings, or (b) stimulate corporate investment and household consumption by lower interest rates due to lower risk premium. However, the change of possibility of fiscal crisis depends on the amount of budget deficits rather than the composition of fiscal adjustment unless tax rates are near tax limits.

The next possible explanation is that consumption is stimulated by the wealth effect caused due to the change of expected future fiscal policy. If a current spending cut implies smaller government consumption in the future, then the future tax burden is expected to decrease, and households will increase consumption. On the other hand, if a current tax increase implies a future increase of government consumption, then households will decrease consumption. However, while typical macroeconomic models assume a reduction of wasteful government consumption, Alesina and his coauthors find that the reductions of transfer payments and public sector wages are effective for successful fiscal adjustment. In the case of the reductions of transfer payments and public sector wages, the income of recipients of transfer payment and public employees decreases, so it is not clear that those spending cuts will have wealth effects. Also, Alesina and Perotti (1996) point out that it is very difficult to estimate the extent to which an increase of government spending is expected by households empirically.

Recognizing the problems in these explanations, Alesina and Perotti (1996) and Alesina et al. (2002) stress the stimulating effects on corporate investment through the following two figures.
mechanisms. With the assumption of a strong bargaining power of labor unions, (a) a public sector wage cut would lower private sector wages in private wage bargaining, so that corporate investment would be stimulated by lower wages and higher profits, (b) an increase of wage tax and social contributions (payroll tax) would raise labor costs and reduce profits, so corporate investment would be discouraged.

In addition, Alesina and Perotti (1996) argue that the government can send the signal of its strong political will toward fiscal consolidation by choosing the method of fiscal adjustments that is more politically difficult. They claim that since cutting transfer payment and public sector wages is more politically difficult than other methods of fiscal adjustment, the government can gain more public confidence, so that larger non-Keynesian effects will make fiscal adjustment more successful.

Thus, in order to claim that Alesina’s argument is applicable to Japan, it is necessary to prove that the three mechanisms suggested by Alesina and Perotti (1996) hold in Japan. The three mechanisms are: (a) public sector wage cuts will lower private sector wages through private wage bargaining, (b) an increase of wage tax and social contributions will raise labor cost, and discourage corporate investment significantly, (c) cutting transfer payments and public sector wages is politically more difficult to implement than a tax increase (especially consumption tax increase) in Japan. However, as long as we know, no analysis of the effectiveness of these mechanisms has been conducted in Japan. In Section 4 and 5, we will consider whether these three mechanisms hold in Japan or not.

### III. Recent Debate about Alesina’s argument

#### III-1. IMF World Economic Outlook (2010)

While Alesina and his coauthors argue that fiscal adjustments tend to be expansionary when they rely mainly on spending cuts, IMF World Economic Outlook (Oct. 2010) questions this idea. Chapter 3 of IMF World Economic Outlook points out that Alesina and his coauthors’ identification method of fiscal adjustment periods based on ex-post data has a few problems; for example, the method may identify budget deficit decrease by temporary asset booms as fiscal adjustment. On the other hand, some fiscal consolidation plans were terminated because of unexpected negative economic shocks. Namely, the previous identification method ignores the motivations behind fiscal actions. Then, following Romer and Romer (2010), IMF (2010) uses OECD Economic Surveys, IMF Staff Reports, and individual countries’ data to identify fiscal consolidation periods based on fiscal policy actions motivated by deficit reduction, irrespective of the outcomes, in 15 advanced countries including Japan from 1980 to 2009.

The fiscal consolidation periods identified by IMF (2010) are significantly different from

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3 IMF (2010) points out the unexpected termination of Japanese fiscal consolidation plan starting from 1997 due to the global financial crisis in 1998 as one example.
Alesina and Ardagna (2010). For example, for the Japanese case, although 1984, 1999, 2001 and 2006 are identified as periods of fiscal adjustment by Alesina and Ardagna (2010), only 1997 is identified by IMF (2010). The Japanese budget deficit seems to have significantly declined from 1998 to 1999, only, however, because a large amount of debt of Japanese National Railway Settlement Corporation was assumed by the government in 1998. Also, IMF (2010) points out the existence of one-time asset operations that improved the fiscal balance only in 2006. (See details in Appendix 3.3 in IMF [2010]). Then, using the panel data, they estimate the average impulse response of output to action-based fiscal consolidation.

IMF (2010) concludes that fiscal consolidation typically has a contractionary effect on output. A fiscal consolidation equal to 1% of GDP typically reduces GDP by about 0.5% within two years. This result is different from the conclusion of Alesina and his coauthors.

On the other hand, as in the previous literature, they find that fiscal contraction relying on spending cuts tends to have smaller contractionary effects than tax based adjustments. However, unlike previous explanations, they suggest the different responses of central banks to different types of fiscal consolidation as an interesting explanation. Central banks usually implement a more accommodating monetary policy in response to a spending-based contraction than to a tax-based contraction. Especially when an indirect tax is raised, the central banks worrying about inflation are reluctant to take an accommodating monetary policy.


A new analysis of the tax-spending mix in fiscal consolidation is provided by the papers by IMF staff in Mauro (2011). Among those papers, Abbas et al. (2011) carefully analyze the fiscal consolidation in EU countries with attention to the difference between the fiscal consolidation plan and its implementation. Abbas et al. (2011) find that large planned adjustments typically envisaged a greater role for spending cuts rather than tax increases. Of the one-third of plans that envisaged revenue increases, less than half were anchored in well-specified tax policy measures (ex. rate increase or elimination of clearly identified tax exemptions). However, in most of these cases, the measures were implemented and resulted in significant revenue increases that were generally sustained beyond the plan horizon. The other plans mentioned improvements in revenue administration and tax compliance, efforts against tax evasion, or generic base-widening.

On the other hand, the compositions of the actually implemented fiscal adjustments are often different from the plans. On the whole, although the plans envisaged four-fifths of the adjustment from primary spending cuts and the remainder from interest bill savings, in reality, less than half of the adjustments came from primary spending cuts, with revenue accounting for one-quarter and the remainder from interest bill savings.

These results reveal a serious problem in the analysis by Alesina and Ardagna (2010) based on ex-post data. Since the revenue increase policies identified from ex-post data include not only well-specified tax policies but also temporary tax measures and revenue
increases due to unexpected economic and asset booms, the analysis based on ex-post data easily concludes that the effects of the fiscal adjustments based on revenue increase measures are only temporary. However, if we focus on the well-specified revenue increase measures such as rate increase and elimination of specified tax exemptions, the effects of those measures are effective even after the plan horizon. Thus, Abbas, et al. (2011) conclude that the composition of planned adjustment does not seem to drive success or failure in implementation.

Based on these analyses, Mauro (2011) concludes that “the revenue-spending mix of fiscal consolidation plans needs to reflect country-specific societal preferences and structural fiscal characteristics (Mauro [2011], p.257).” He further points out that while greater reliance on spending cuts would be consistent with the large size of the state in many advanced economies (especially Europe) in the past fiscal adjustment plans, it is likely that several advanced countries will need to include some revenue enhancing measures in their fiscal adjustments.

### III-3. Counterargument from Alesina and Ardagna (2012), and Alesina, Favero and Giavazzi (2012)


Alesina, Favero and Giavazzi (2012) use the definition of fiscal consolidation based on the ex-ante policy intention of Deviries et al. (2011) and divide fiscal policies in fiscal consolidation periods into spending cuts based fiscal consolidations or revenue increase based fiscal consolidations. Then they estimate the effects of these fiscal policies on GDP and conclude that negative effects of a spending cut based on fiscal consolidation are smaller than those of a revenue increase based fiscal consolidation. Also, they argue that the effects of monetary policies of central banks emphasized by IMF (2010) are not important.

Alesina and Ardagna (2012) consider only multi-year fiscal adjustments by using new definitions of fiscal adjustment, successful fiscal adjustments and expansionary fiscal adjustments. Among the fiscal adjustments in OECD countries selected by these new criteria, they find that spending-based fiscal adjustments are less likely to be reversed. Also, they find that spending-based fiscal adjustments have caused smaller recessions than tax based fiscal adjustments.

However, in their analysis, 1979–1987 in Japan is identified as a period of successful fiscal adjustments, although the Japanese government actually had a difficult time reducing budget deficits without consumption tax during that period. Miyajima (1989) points out that some fiscal adjustments during that period were actually a kind of manipulation between different government accounts. Still, the Japanese economy enjoyed a great economic boom and the budget deficit decreased after 1987 because of asset bubbles in the late 1980s, which appears to be why the period is identified as a time of successful fiscal adjustments under the new criteria of Alesina and Ardagna (2012). However, we now know—after the burst of the
asset bubble—that these economic booms and budget deficit reduction were just illusionary. In fact, the Japanese case shows the difficulty of identifying successful fiscal adjustments even with the new criteria of Alesina and Ardagna (2012).

Alesina and Ardagna (2012) also conduct an analysis using the data of Devries et al. (2011) and arrive at a similar conclusion to that of Alesina, Favero and Giavazzi (2012).

Thus, the debate about Alesina’s argument continues now. In this situation, we believe that the analysis of applicability of Alesina’s argument to Japan is valuable to provide new evidence for the current continuing discussion.

IV. Applicability of the argument by Alesina and Perotti (1996) to Japan: Part 1

As explained above, in order to apply the argument made by Alesina and Perotti (1996), it is necessary that (1) cuts in public sector wages lead to a decline in private sector wages and stimulate corporate investment, (2) a tax increase and social contribution increase raise labor costs significantly, and (3) governments can gain more public confidence in their fiscal consolidation by cutting public sector wages and transfer payments than by increasing taxes because the former measure is politically more difficult. We check whether these requirements are satisfied in Japan or not in the following sections.

In this section, we consider whether cuts in public sector wages lead to a decline in private sector wages or not in Japan.

IV-1. Possible mechanisms to enable public sector wage cuts to reduce private sector wages

The effects of public sector wage cuts have not been extensively studied before. From the points of conventional Keynesian economics, with the assumption of rigid wages in the private sector, a cut in public employment will increase unemployment. Also, a cut in the public sector wage rate will reduce the disposal income of households of public employees as well as their consumption. Therefore, in order to argue for positive effects of a public sector wage cut, a non-Keynesian approach is necessary. Alesina, Favero and Giavazzi (2012) argue that there are some routes that enable a public sector wage cut to make private sector wages lower by pointing out the analysis by Finn (1998) with perfectly competitive labor markets and that by Ardagna (2007) with strong labor unions.

Finn (1998) builds a two-sector RBC model with the public and private sectors in order to analyze the effects of a cut in public employment. When individuals do not evaluate the service provided by the public sector at all, a public employment cut policy will reduce the amount of resources used in the public sector and increase private wealth. The increase of wealth reduces labor supply, but less so than a decrease of labor demand due to a public employment cut. Thus, wages will fall and corporate profits will rise. This will stimulate corporate investment and have positive effects on the national economy. However, his simulation shows that the macroeconomic impact of a public employment cut is limited in
the U.S., since the share of the public sector is relatively small in the U.S.

On the other hand, Ardagna (2007) builds another two-sector model with a strong labor union enjoying a monopolistic seller status in the private labor market. In her model, labor unions set a wage level in order to maximize the expected utility of union members. It is assumed that workers losing their jobs because of the too-high wages set by the labor union will receive an unemployment insurance benefit or will be employed in the public sector. In this setting, if the government cuts public employment, then the probability of getting a job in the public sector will decrease. If the government reduces the public sector wage rate, such laid-off workers can earn only a lower wage even if they can find jobs in the public sector. Thus, private labor unions will set a lower wage rate in response to both a public employment cut and public sector wage cut.

However, the results highly depend on the assumption about the role of the public sector service. While the baseline case of Ardagna (2007) assumes that the public sector service is simply wasteful, if strong positive effects of the public sector service are assumed, it is possible that a reduction of public sector employment may have negative effects on output (Figure 2 in Ardagna [2007]).

Recently, Gomes (2014) has built a DSGE model incorporating both a public sector and job search model in order to analyze the optimal public sector wage and public employment. In his model, employment in both the public sector and private sector will increase by the difference between the number of workers who are newly employed and that of workers who leave their jobs. The number of newly employed workers in one sector is determined by the function of matching unemployed and vacancies in the sector. Unemployed workers choose one sector in which to search for jobs considering the wages and ratios of job leavers in both sectors. Private sector wages are determined by a Nash-bargaining solution between employers and employees. The government provides a public service affecting individual utility directly and decides public sector wages and vacancies in the public sector.

In this setting, the public sector wage and public employment will have effects on the efficiency of the private labor market. Gomes (2014) shows that when the Hosios condition is satisfied in the private labor market, if the government decides wages and vacancies in the public sector with consideration given to the externality of its decision on the private labor market, an efficient outcome in the private labor market is achieved. When negative shocks occur in the private labor market, it is optimal to reduce public sector wages in response to lower private sector wages, since more workers will leave their jobs and seek jobs in the public sector if public sector wages are relatively higher, and the unemployment rate will be higher. Also, it is optimal to increase vacancies in the public sector to increase employment in recessions. (When public service is strongly complimentary to private consumption, it may be better that public employment is reduced in response to lower demand for public service in recessions.)

The optimal ratio of wages in the public sector and private sector depends on productivities in both sectors and parameters related to friction in both labor markets. If public sector wages are too high, too many unemployed workers will move to the public sector, while if public
sector wages are too low, sufficient public employment cannot be achieved. His simulation for the U.S. economy estimates that the optimal public sector wage is lower than the private sector wage by 3%, but the results depend on the assumption of parameters.

From his analysis, Gomes (2014) recommends the policy arrangement for adjustment of public sector wages in response to private sector wages.4

There are a few other points to consider for the optimal public sector wage. While it is assumed that public sector wage payment is financed by lump-sum tax in the analysis by Gomes (2014), it should be financed by distortionary taxes in reality. If the marginal cost of public finance is very high, the optimal public sector wage level will be lower than the optimal level with lump-sum tax. On the other hand, lower public sector wages may bring about lower quality of job seekers in the public sector (Nickell and Quintini [2002]). Further, lower public sector wages may encourage corruption in the public sector.

IV-2. The Framework of Wage Determination in the Public Sector in Japan

Since most public services are not transacted in markets, it is hard to measure marginal productivity of public employees. Thus, instead of a market mechanism, an institutional framework for determining public employees’ wages is necessary. We explain four types of wage determination frameworks in advanced countries, and describe the wage determination framework in Japan, based on Nishimura (1999).

Nishimura (1999) categorizes the wage determination institutional frameworks of public employees into four types using two axes of the relative strength of constraints on basic labor rights and the relative role of neutral institutions and administrations in wage determination. The first type is “neutral institution.” In this type, the basic labor rights of public employees are constrained weakly so that the public sector wage is determined by bargaining between the government and the labor union, but recommendations by a neutral institution or mediation by mediation committee play an important role in this bargaining. The second type is “direct bargaining.” In the second type, basic labor rights of public employees are constrained weakly so that public sector wages are determined by bargaining between the government and the labor union, and recommendation by a neutral institution or mediation by a mediation committee does not play any significant role in this bargaining. The third type is “strong personnel policy authority.” In this type, in order to compensate for a strong restriction on the basic labor rights of public employees, a recommendation based on a comparison between public sector wages and private sector wages conducted by a neutral personnel policy authority plays a crucial role in public sector wage determination. The fourth type is “strong administration.” In this type, the basic labor rights of public employees

4 The co-movement of public sector wages and private sector wages is analyzed by Quadrini and Trigari (2007). Their study shows that American public sector wages did not follow private sector wages from 1948 to 1970, but since 1970, public sector wages have tended to follow private sector wages. It is estimated that total employment fluctuates less with this change.
are strongly restricted, and the administration plays a leading role in wage determination.

The most common criterion for determining the wages of public employees in advanced countries is a comparison between public sector wages and private sector wages. In fact, in many countries, such comparison is legally required, while in others it is observed that public sector wages follow private sector wages effectively even without the legal requirement. However, there are two different methods of comparison among advanced countries. Some countries, including Japan, conduct a detailed analysis of public sector wages and private sector wages including a comprehensive study of actual private sector wages in different job categories and positions and a careful comparison between the public sector wage and private sector wage in the same position. Other countries conduct a simple comparison using the general trend of private sector wage movement based on existing government statistics, and utilize the results for adjusting public sector wages. Further, there are two methods of public sector wage adjustment to inflation. Some countries adjust public sector wages explicitly and directly to inflation, while Japan and other countries adjust public sector wages to inflation only indirectly through adjustment to private sector wages, since private sector wages are considered to reflect inflation.

In Japan, basic labor rights such as the right to strike have been strictly restricted for national government employees (non-public-enterprise employees). In order to compensate for it, the National Personnel Authority (NPA), a neutral personnel policy authority, conducts detailed surveys of private sector wages and submits recommendations to the Diet and the Cabinet. These recommendations play a crucial role in public sector wage determination. Therefore, Japanese public sector wage determination is considered to be of the third type above, namely, “strong personnel policy authority.”

A more detailed explanation based on the Annual Report of NPA (various years) follows. Regarding monthly wages, NPA conducts the “Fact-finding Survey of Job-by-job Pay Rates in Private Industry” every April in order to grasp the actual situation of pay rates in private enterprises following the revision of wage rates. (In Japan, annual wage bargaining between managements and labor unions are held in spring [Shunto],) which collects the wage data of regular employees of randomly sampled private offices (having similar jobs to those in the public sector) of companies or branches with 50 or more employees all over Japan5. NPA also conducts “Fact-finding Survey of Remuneration of National Public Employees.” Then, NPA compares the monthly wages for April of the employees with similar jobs, similar positions, similar education and similar ages in the public sector and private sector. Regarding special remuneration (bonus), a similar procedure is taken for comparison of special remuneration in both sectors. Based on this careful comparison, NPA usually makes a recommendation to the Diet and the Cabinet about the revision of the monthly wages and special remuneration in August. After receiving the recommendation from NPA, the Government holds a Cabinet meeting related to remuneration and discusses how to deal with the recommendation. Then, the Cabinet decides and submits to the Diet a bill for revision of

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5 Before 2006, only companies or branches with 100 or more employees.
the Remuneration Act to implement the NPA’s recommendation.

Accordingly, based on the current public sector wage determination procedure, Japanese public sector wages should be set in balance with corresponding private sector wages. In reality, however, reflecting the very difficult fiscal situation, sometimes a recommendation cannot be fully implemented. Under Prime Minister Zenko Suzuki, no adjustment of public sector wages was implemented due to the very severe fiscal situation, but NPA’s recommendation was implemented gradually and the balance between public sector wages and private sector wages had finally been restored.\(^6\) Thus, the wage level of national government employees follows the private sector wage level determined by demand and supply in the private labor market.

On the other hand, in order to compensate for restrictions on local government employees’ basic labor rights, the Personnel Commissions are established for prefectures and large cities (ordinance-designated cities). The Personnel Commissions make their recommendations about revisions of local government employees’ wages. Heads of local governments submit wage revision bills based on the Personnel Commissions’ recommendations to the local assemblies. The Local Civil Service Law (Article 24) provides that the compensation of local government employees should be determined with consideration given to the cost of living and other circumstances including the compensation of national government employees, other local government employees and employees of private enterprises. Thus, not only the balance between public sector wages and private sector wages in the region, but also the balance between national public sector wages and local public sector wages is required. However, unlike national government employees, local government employees can have labor-management agreements (Rodo Kyotei) with local governments, although they cannot have more powerfully binding collective agreements (Rodo Kyoyaku) with local governments. One characteristic in determining the wages local government employees is the relatively stronger role of local governments, in comparison with the wage determination for national government employees, in which the National Personnel Authority plays a more crucial role.

Due to this weak role of the Personnel Commission, some local governments may set higher wages lacking balance between the wage levels of national government employees and private enterprise employees. Actually, in the 1970s, it was argued that the high wage level at local governments caused the fiscal situation of local governments to deteriorate. The Ministry of Home Affairs guided those local governments to fix the too-high wages, so the imbalance between wage levels of national government employees and local government employees has been gradually reduced.

Thus, while too-high local public sector wages were criticized before, in general, public

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\(^6\) By postponing the implementation of the NPA recommendation in 1982, the gap between public sector wages and private sector wages increased in 1984, so that NPA recommendation called for higher public sector wages. However, the adjustment of public sector wages took a little time, and the full implementation of the NPA recommendation was achieved in 1986.
sector wages have been determined to follow private sector wages. Gomes (2014) points out that it is the optimal to set public sector wages in accordance with private sector wages, and the Japanese public sector wage policy is consistent with that concept.

IV-3. Wage Determination and the Role of Labor Unions in the Japanese Labor Market

While public wages generally follow private sector wages in Japan, do public sector wages affect the private sector wage determination in Japan?

One important factor in wage determination is the relative bargaining power of the labor union in a labor market. For example, Cahuc and Carcillo (2013) point out that in countries where the labor union participation rate is high, public sector wage cuts are less frequent in recessions and election years.

Daveri and Tabellini (2000) categorize labor markets in advanced countries by the degree of centralization of labor unions into three groups: Anglo-Saxon countries (mainly labor unions by individual firm), European continent countries (mainly labor unions by industry) and Nordic countries (the most centralized labor union). In their analysis, Japanese labor unions are categorized in the least centralized group (Anglo-Saxon countries). Based on their analysis, the model by Ardagna (2007) assuming a strong private labor union with monopoly power cannot be applied to the Japanese labor market. The assumption of competitive labor markets or job search model of Gomes (2014) is more appropriate for the Japanese case. With those assumptions, if Japanese public sector wages are set to follow private sector wages, then public sector wages will have only limited effects on private sector wages in Japan.

Also, we should bear in mind that the role of the public sector in the Japanese labor market is very limited from the viewpoint of international standards. The international comparison by OECD (2013) shows that the ratio of the employees of national and local governments to all employees in Japan is only 6.7%, which is the second smallest next to South Korea in OECD countries. The average ratio of OECD countries (2011) is 15.2%, and the ratios of Nordic countries are near 30%. With this very small role of employees in the public sector, small effects of public sector wages on private sector wages are expected.

However, in policy debate of the past in Japan, the possibility of significant effects of public sector wages on private sector wages has not been totally denied. For example, in the first oil shock, some economic leaders argued for a slower adjustment of public sector wages to private sector wages as one of the “income policies.” NPA recommendations directly and indirectly affected the wage level of national government employees (non-public-enterprise employees and public-enterprise employees, about 638,000 in 2011) and local government employees (about 2,794,000 in 2011). Further, it indirectly affects the wage level of employees of other public sectors such as Specified Incorporated Administrative Agencies.

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7 This data comes from Figure 5.1 of “Government at a Glance (2013)” of OECD. While the data of other countries are of 2011, Japanese data is of 2009.
and national universities.

Hayakawa and Matsui (1979) point out that even in the private sector, the wage levels of employees of private schools, private hospitals, and agriculture cooperatives is affected by the wage levels of employees of similar public institutions. Further, they point out that some small and medium enterprises, which typically carry out wage revisions in summer or autumn, use the NPA recommendation as a reference for their wage determination. However, these small and medium enterprises may actually follow the wage revision of larger private companies, and use the NPA recommendation as a comprehensive research result about the wage level of larger company employees determined in spring. If so, even when small and medium enterprises seem to follow public sector wages, the true relationship is that both public sector wages and small and medium private enterprises’ wages follow large private companies’ wages.

Since there are different views about the effects of public sector wages on private sector wages, we need to conduct an empirical study using actual Japanese wage data as below.

**IV-4. Time Series analysis of Public Sector Wages and Private Sector Wages in Japan**

What is the relationship between public sector wages and private sector wages in Japan? While there is very little existing research on this topic, Lamo, Perez and Schuknecht (2008) conduct an empirical study about the relationship between public sector wages and private sector wages in 18 OECD countries, including Japan. They calculate the time series data of nominal compensation per employee as public sector wages and private sector wages between 1970 and 2006 using the December issue of OECD Economic Outlook. In order to find a short-term correlation, after detrending the time series of public sector wages and private sector wages using first difference, linear trend and HP filter, they estimate the cross correlation function of public sector wage and private sector wage time series, and find strong positive correlation between them in all countries. Further, in order to consider the long-term relationship, they conduct co-integration tests and find strong co-integration relationships between public and private sector wages.

However, since they use compensation per employee from macro data, their wage data may not reflect actual public and private sector wage changes accurately. Also, since the age and job structures of the public sector and private sector are evolving in the long run, a comparison without appropriate adjustment can be misleading.

In order to use more realistic wage data, this paper will use the results of one of the most comprehensive surveys of public sector wages and private sector wages in Japan, namely, “Fact-finding Survey of Remuneration of National Public Employees” and “Fact-finding Survey of Job-by-job Pay Rates in Private Industry” conducted by NPA of Japan. Specifically, we will use the time series data of the monthly wages (in April) of officials in the status of “Administrative Service (1)” (denoted by $W_g$) and the corresponding monthly wages (in April) of private employees in the corresponding position, working region, education and age (denoted by $W_p$) calculated by the Laspeyres formula from 1959 (the year of the
introduction of the current comparison method using the Laspeyres formula) shown on the recommendation of NPA every year. “Fact-finding Survey of Remuneration of National Public Employees” collects the data of monthly compensation in April for all national government employees (about 260,000 in 2011) except the most recently employed, and “Fact-finding Survey of Job-by-job Pay Rates in Private Industry” collects the data of monthly compensation in April of about 470,000 (in 2011) private employees at corporations with 50 or more employees or at offices with 50 or more employees.

Figure 2 shows the time series of wages of public sector employees and private sector employees (Wg and Wp). Both moved in almost the same manner, which is natural since the NPA recommended a wage revision to eliminate the gap between public sector wages and private sector wages, and the wage level was revised in principle based on the recommendation unless the Cabinet decided to postpone the revision in some exceptional circumstances. A significant gap between the two wages in 2012 is observed in Figure 2, since “Act concerning the Temporary Special Provisions of the Remuneration of National Public Employees” introduced a special wage cut for national public employees for two years from April 2012 in response to the Great East Japan Earthquake in 2011. Since this is truly a special measure due to the exceptional natural disaster, we omitted the data of 2012 for our empirical study and use the wage data only between 1959 and 2011.

First, in order to examine the short-term relationship between public sector wages and private sector wages, we use the time series of nominal public sector wages and nominal private sector wages that are de-trended by the three methods of i) first difference, ii) a linear deterministic trend, and iii) HP filter. Further, we use iv) the time series of real public sector wages and real private sector wages denominated by the consumer price index. The estimated cross covariance functions between these four types of time series are shown in Table 1. Strong positive cross correlations are observed in all of four types of time series.

In order to examine the long-term relationship, we conduct various co-integration tests. We find that the original time series of both public sector wages (Wg) and private sector wages (Wp) are I(2) by the Augmented Dickey-Fuller (ADF) test, Phillip and Perron (PP) test, and Kwaiatkowski, Phillips, Schmidt, and Shin (KPSS) test. While there is a co-integration test using I(2) time series data directly (Juselius [2006]), it can be very complicated. Instead, we use another method recommended by Juselius (2006), which uses the I(1) real time series made by the original time series divided by the consumer price index. The real time series of public sector wages (denoted by RWg) and private sector wages (denoted by RWp) are found as I(1) at a 5% level by the ADF test, PP test and KPSS test. Then, using these real time series of public sector wages and private sector wages, we conduct the co-integration tests. Then, while the Johansen co-integration test confirms the existence of co-integration between two time series, the Engel-Granger (EG) test and

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8 Kongstead (2005) points out that there is a “misspecification-type approach,” checking whether the transformed real data is not I(2) using the KPSS test (rather than the ADF test) in order to confirm that the transformation of I(2) nominal data into I(1) real data has no problems.
Phillips-Ouliaris (PO) test rejects the existence of co-integration. When we conduct the Vector Error Correction Model (VECM) based on Johansen results, we estimate the questionable results of the estimated impulse function including the negative effects of positive shock in public sector wages on private sector wages.

However, since the NPA recommendations try to eliminate the gap between public sector wages and private sector wages, it is a little puzzling that we cannot find a stable co-integration relationship between the two wages from 1959 to 2011. One possible reason is that the wage determination framework based on NPA recommendations was not well established in its early days. In the 1960s, a recommendation calling for a wage increase from May of that year to eliminate the gap between public sector wages and private sector wages was not fulfilled due to fiscal constraints. A wage increase to completely eliminate the

Table 1. Cross Correlation between Private Sector Wages \( t \) and Public Sector Wages \( (t+k) \)

<table>
<thead>
<tr>
<th>Method of Detrending</th>
<th>(-2)</th>
<th>(-1)</th>
<th>0</th>
<th>+1</th>
<th>+2</th>
</tr>
</thead>
<tbody>
<tr>
<td>First difference</td>
<td>0.5529</td>
<td>0.6883</td>
<td>0.8704</td>
<td>0.7999</td>
<td>0.6378</td>
</tr>
<tr>
<td>Linear trend</td>
<td>0.8080</td>
<td>0.9090</td>
<td>0.9891</td>
<td>0.9440</td>
<td>0.8728</td>
</tr>
<tr>
<td>HP filter</td>
<td>0.4448</td>
<td>0.7019</td>
<td>0.8974</td>
<td>0.8612</td>
<td>0.6662</td>
</tr>
<tr>
<td>Real wage</td>
<td>0.8836</td>
<td>0.9392</td>
<td>0.9978</td>
<td>0.9441</td>
<td>0.8895</td>
</tr>
</tbody>
</table>

Figure 2. National Public Sector Wages and Private Sector Wages (Monthly Wages)

(Source) Author’ calculation based on Annual Report of National Personnel Authority

Table 1. Cross Correlation between Private Sector Wages \( t \) and Public Sector Wages \( (t+k) \)
gap based on the recommendation was established as standard practice in 1970. The wage increase from April rather than May was established as a standard practice in 1972. Also, a significant confusion in wage determination in both the public sector and private sector due to the first oil shock and the following very high inflation was observed in 1973 and 1974.

Recognizing these problems of the wage determination in the public sector explained above, we conduct co-integration tests using only the wage time series from 1976 (when the confusion after the first oil shock was calmed) to 2011. After de-trending the time series of wages in both sectors with the assumption of a linear deterministic trend, we find that two time series are I(1) by the ADF test and PP test. Then we conduct co-integration tests using nominal public sector wages from 1976 (denoted by Wg76) and nominal private sector wages from 1976 (denoted by Wp76). With the EG test and PO test, we cannot reject the existence of co-integration of wages in both sectors at the 5% level, with the only exception that the p-value is 5.1%, very slightly larger than 5%, in the case of a t-value in EG test. Also, we cannot reject the existence of co-integration at the 5% level by both a trace test and the maximum eigenvalue test of the Johansen co-integration test with the assumptions of two lags, no trend, and no constant. It is natural that the co-integration includes no trend and no constant, since NPA recommendations try to eliminate the gap between public sector wages and private sector wages.

Next, based on these results, we estimate the Vector Error Correction Model (VECM) with two lags based on Schwarz Information Criteria (SIC). The estimation result is shown in Table 2. The estimated coefficient with Wg76 in the co-integration equation is -0.937392, nearly 1. This reflects that the gap between public sector wages and private sector wages was effectively eliminated based on the NPA recommendation in the long run. While the adjustment coefficient (the coefficient with the co-integration equation term in VECM) is statistically insignificant in the estimated equation with the differential of private sector wages as a dependent variable, it is statically significant in the estimated equation with the differential of public sector wages as a dependent variable. This implies that the gap between public sector wages and private sector wages was reduced mainly by the adjustment of public sector wages. This is confirmed from the Cholesly impulse response function (order: private sector wage, public sector wage) shown in Figure 3. Public sector wages are affected strongly and persistently by a shock to private sector wages, while the effect on private sector wages by a shock to public sector wages is limited. Similarly, the variance decomposition of forecast errors (order: private sector wage, public sector wage) in Figure 4 shows that most of the variance of forecast errors of both public sector wages and private sector wages can be explained by shocks to private sector wages in the long run.

These estimation results confirm that since 1976, when the public sector wage determination mechanism based on an NPA recommendation was steadily established, public sector wages have been adjusted to eliminate the gap with private sector wages in the long run, and private sector wages have not been affected by public sector wages in Japan.
Table 2. Estimation Results of Vector Error Correction Model (VECM) between Private Sector Wages (Wp76) and Public Sector Wages (Wg76) from 1976 to 2011

(1) CointEq

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Wp76(-1)</td>
<td>1</td>
</tr>
<tr>
<td>Wg76(-1)</td>
<td>-0.93739</td>
</tr>
<tr>
<td></td>
<td>[-20.3293]</td>
</tr>
</tbody>
</table>

[ ]: t-value

(2) VECM

<table>
<thead>
<tr>
<th></th>
<th>D(Wp76)</th>
<th>D(Wg76)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CointEq</td>
<td>-0.14837</td>
<td>0.608279</td>
</tr>
<tr>
<td></td>
<td>[-0.81317]</td>
<td>[2.53057]</td>
</tr>
<tr>
<td>D(Wp76(-1))</td>
<td>0.864797</td>
<td>0.634634</td>
</tr>
<tr>
<td></td>
<td>[3.94692]</td>
<td>[2.19863]</td>
</tr>
<tr>
<td>D(Wp76(-2))</td>
<td>-0.08453</td>
<td>-0.25241</td>
</tr>
<tr>
<td></td>
<td>[-0.34378]</td>
<td>[-0.77921]</td>
</tr>
<tr>
<td>D(Wg76(-1))</td>
<td>-0.09844</td>
<td>0.08788</td>
</tr>
<tr>
<td></td>
<td>[-0.58029]</td>
<td>[0.39325]</td>
</tr>
<tr>
<td>D(Wg76(-2))</td>
<td>0.140443</td>
<td>0.245499</td>
</tr>
<tr>
<td></td>
<td>[0.95710]</td>
<td>[1.26996]</td>
</tr>
</tbody>
</table>

[ ]: t-value

Figure 3. Cholesky Impulse Response Function based on VECM of Public Sector Wages and Private Sector Wages from 1976 to 2011
IV-5. **Granger Causality between Public Sector Wages and Private Sector Wages**

In order to ascertain the causality between public sector wages and private sector wages, it is useful to check Granger causality between them. Lamo, Perez and Schuknecht (2008) examine Granger causality between public sector wages and private sector wages in OECD countries. After using ten methods of detrending, such as first difference, linear deterministic trend, HP filter and others, they find Granger causality from nominal private sector wages to nominal public sector wages in most countries. At the same time, they find Granger causality from nominal public sector wages to nominal private sector wages in Finland, Sweden and Denmark. However, when they consider Granger causality with the price index in addition to public sector wages and private sector wages, Granger causality from private sector wages to public sector wage is lost in many countries. This implies the important role of price level in the effects of private sector wages on public sector wages.

Further, Lamo, Perez and Schuknecht (2008) examine Granger causality applying the co-integration test of Toda and Yamamoto (1995) to the original wage data without detrending. In this case, they find Granger causality from private sector wages to public sector wages in most countries, while they find Granger causality from public sector wages to private sector wages in a few European countries. When they add price level to wages, Granger causality from private sector wages to public sector wages is lost in many countries, which implies the important role of price level in the effects of private sector wages to public sector wages in those countries again.

Lamo, Perez and Schuknecht (2008) include Japan in their Granger causality analysis.
After detrending the Japanese time series data by most methods except first difference, they find Granger causality from public sector wages to private sector wages, while they find no causality in the opposite direction. When the price index is added to both wages, they find Granger causality in both directions. On the other hand, when they apply the method of Toda and Yamamoto (1995), they find Granger causality from private sector wages to public sector wages.

It is strange to find Granger causality from public sector wages to private sector wages under the Japanese public wage determination mechanism eliminating the gap between the two wages. One possible reason is that their wage data may not reflect actual wages well, since they calculate compensation per worker from SNA-based macroeconomic data. Also, while the age structures of public sector employees and private sector employees changed differently, they ignore such structural changes.

Thus, we consider Granger causality using public sector wages and private sector wages based on “Fact-finding Survey of Remuneration of National Public Employees” and “Fact-finding Survey of Job-by-job Pay Rates in Private Industry.” As we showed above, the wage data from 1959 to 2011 is not stationary even after detrending, so we apply the method of Toda and Yamamoto (1995), which can be applied directly to the cointegrated time series.

Following Toda and Yamamoto (1995), first we choose 2 as the best lag according to AIC and SIC from unrestricted VAR using the original wage data. Since the original wage data is I(2), we conduct VAR with 4 (=2+2) lags and check Granger causality. The estimated results are in Table 3 (1). Granger causality from private sector wages to public sector wages cannot be rejected at the 5% level, while Granger causality from public sector wages to private sector wages is clearly rejected. It is natural to observe Granger causality from public sector wages to private sector wages since public sector wages are adjusted to eliminate the gap between public sector wages and private sector wages based on NPA recommendations. On the other hand, no Granger causality from public sector wages to private sector wages means that a shock to public sector wages will not help the forecast of future private sector wages. This result implies that, unlike Alesina’s claim, the intentional reduction of public sector wages will not reduce private sector wages in Japan.

Further, considering the findings of Lamo, Perez and Schuknecht (2008), we conduct the Granger causality test with three variables of public sector wage, private sector wage and price level (CPI) by applying the method of Toda and Yamamoto (1995). Since the estimated optimal lags from unrestricted VAR is 2, we conduct the Granger causality test using VAR with 4 (=2+2) lags. The estimated results are shown in Table 3 (2).

In Table 3(2), we cannot reject Granger causality from CPI to private sector wages at 5%, but we can reject Granger causality from public sector wages to private sector wages. Also, we cannot reject Granger causality from public sector wages to private sector wages at 5%, but we can reject Granger causality from CPI to public sector wages. On the other hand, we can reject Granger causality from either public sector wages or private sector wages to CPI.

While Lamo, Perez and Schuknecht (2008) find that Granger causality from private sector wages to public sector wages disappears in many countries when they add the price
Table 3. Tests of Granger Causality among Private Sector Wages (Wp), Public Sector Wages (Wg) and Consumer Price Index (CPI) (Toda and Yamamoto (1995))

(1) Test of Granger Causality with Private Sector Wages and Public Sector Wages

<table>
<thead>
<tr>
<th>Dependent Variables</th>
<th>Independent Variables</th>
<th>$\chi^2$</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wp</td>
<td>Wg</td>
<td>0.483225</td>
<td>0.7854</td>
</tr>
<tr>
<td>Wg</td>
<td>Wp</td>
<td>38.20262</td>
<td>0.0000*</td>
</tr>
</tbody>
</table>

(2) Test of Granger Causality among Private Sector Wages (Wp), Public Sector Wages (Wg) and Consumer Price Index (CPI)

<table>
<thead>
<tr>
<th>Dependent Variables</th>
<th>Independent Variables</th>
<th>$\chi^2$</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wp</td>
<td>Wg</td>
<td>0.068055</td>
<td>0.9665</td>
</tr>
<tr>
<td></td>
<td>CPI</td>
<td>15.95944</td>
<td>0.0003*</td>
</tr>
<tr>
<td></td>
<td>all</td>
<td>16.56078</td>
<td>0.0024*</td>
</tr>
<tr>
<td>Wg</td>
<td>Wp</td>
<td>21.60246</td>
<td>0.0000*</td>
</tr>
<tr>
<td></td>
<td>CPI</td>
<td>1.868046</td>
<td>0.3930</td>
</tr>
<tr>
<td></td>
<td>all</td>
<td>53.14338</td>
<td>0.0000*</td>
</tr>
<tr>
<td>CPI</td>
<td>Wp</td>
<td>3.883294</td>
<td>0.1435</td>
</tr>
<tr>
<td></td>
<td>Wg</td>
<td>0.327789</td>
<td>0.8488</td>
</tr>
<tr>
<td></td>
<td>all</td>
<td>6.643124</td>
<td>0.1560</td>
</tr>
</tbody>
</table>

(Note 1) * is denoted when it is statically significant at 5%
(Note 2) Tests using Eviews following Giles (2011)

index to variables, there is no such result in the Japanese case. Even with CPI, there is no Granger causality from public sector wages to private sector wages, so the argument of Alesina and his coauthors does not hold in the Japanese case.

Further, while we conduct Granger causality using only the time series from 1976 to 2011, the results are the same as in the analysis with the time series from 1959.

IV-6. Possible Effects of Future Reform of Wage Determination Mechanism of Public Sector Employees in Japan

IV-6-1. Recent Movement related to the Reform of Wage Determination Institution of Public Sector Employees in Japan

As explained above, public sector wages have been adjusted based on NPA recommendations in Japan. However, Article 12 of the Basic Act of National Public Service Reform in 2008 stipulates that the government will show the comprehensive picture of
benefit and cost of providing the right to a collective labor agreement with their employer to the larger coverage of national public employees, and then, with the understanding of the Japanese people, it will establish a transparent and autonomous labor management relationship. On the other hand, Article 12 of the same law provides the future plan that the new Cabinet Bureau of Personnel Affairs will be established, and the certain authority of the national government personnel policy that is necessary for effective implementation of the role of the new bureau will be shifted from the NPA to the new bureau. The related four laws submitted to the Diet in June 2011 proposed (a) providing the right to labor bargaining, (b) abolishing the NPA and its recommendations, establishing a new Cabinet Bureau of Personnel Affairs and a new Public Service Agency responsible for national government personnel policy, and (c) establishing a scheme for performing conciliation, mediation and arbitration of labor disputes between labor and management (national government) by Central Labor Relation Committee. However, these laws did not pass in the Lower House of the Diet.

The current Abe administration is considered to be reluctant to reform of the wage determination framework for public sector employees. The mid-term report by the Headquarters of Administration Reform of the majority party (Liberal Democratic Party) argues that since the reform based on the Basic Act of National Public Service Reform in 2008 was not supported by the Japanese people, the current wage determination framework based on NPA recommendations should be respected. While the Abe administration announced their basic policy on the public service in June 28, 2015, it did not include the reform of the wage determination framework. While the related bill including the establishment of a new Cabinet Bureau of Personnel Affair was passed, it does not include a change of the wage determination framework. However, the Abe administration did not deny the idea of wage determination framework reform officially.

On the other hand, after the Great East Earthquake, in order to finance special spending for recovery, the temporary special provision to cut national public sector wages (7% cut on average) from April 2012 to March 2014 was introduced. Similar measures were expected for local public sector employees, but some local government (14.3% of local governments according to Ministry of Internal Affairs and Communications (October 2013)) rejected the reduction of its employees. The wage determination method returned to the normal procedure after April 2014. It is reported that the Abe administration judged that it cannot continue this extraordinary measure without NPA recommendations and considered its request to raise private sector wages in order to leave deflation behind (Jiji Press News [November 15, 2013]).

IV-6-2. Possible Economic Effects of the Reform of the Wage Determination Framework for Public Employees in Japan

In Japan, while there has been debate on the wage determination framework of public employees in relation to basic labor rights of public employees, its possible economic effects
have not been discussed seriously.

However, the reform of the wage determination framework of public employees may have important effects on the Japanese economy. If the four bills submitted to the diet in 2011 had passed, the NPA recommendation framework would have been abandoned and public sector wages would have been determined solely by labor-management bargaining in Japan. NPA pointed out that without the current NPA recommendation framework, the constraints put by market pressure on public sector wages would be lost (National Personnel Authority [2012]). As the collective bargaining models in labor economics show, wage levels are determined by the relative bargaining powers of the labor union and management, and can be higher or lower than private sector wages without any anchor. In fact, there are wide-ranging views about whether public sector wages are higher or lower among the related parties. Some political parties supporting the reform argue that the reform will help to lower public sector wages. However, the employees of Japanese local governments enjoy stronger labor rights than the employees of the national government, and their wage determinations are considered to be constrained more weakly by the recommendations of the local personnel commissions. With a stronger bargaining power of the labor union and weak constraints, the level of public sector wages of many local governments was unjustifiably higher than that of the national government, and an intervention by the national government was necessary to lower the too-high local public sector wage.

If public sector wages are determined to deviate from private sector wages, the Granger causality from private sector wages to public sector wages confirmed using the existing wage data would be lost. Further, if the co-movement between public sector wages and private sector wages is desirable as Gomes (2014) points out, the reform toward public sector wage determination by collective bargaining may reduce social welfare.

On the other hand, we cannot confirm Granger causality from public sector wages to private sector wages in our analysis, and without a structural change of the Japanese labor market, it seems that changes in public sector wages will continue to have no significant effects on private sector wages. Thus, even with the possible reform toward public sector wage determination by collective bargaining, we cannot expect a public sector wage cut to cause lower private sector wages and have significant positive effects on corporate investment and economy as Alesina and his coauthors stress.

In fact, the economic policy of the current Abe administration (“Abenomics”) tries to raise private sector wages in order to encourage consumption, and is called the “reverse income policy” (Yoshikawa [2013]). The claim by Alesina and Perotti (1996) that the public sector wage cut brings more corporate investment seems to be rejected by Abenomics.

While there has been no serious economic analysis of the effects of public sector wages in Japan so far, in the age of fiscal austerity, public sector wage policy will be discussed more actively. It is desirable to have more research on the possible effects of public sector wages in Japan.
V. Applicability of Alesina and Perotti (1996)’s Argument to Japan: Part 2

In this section, we will look at whether other mechanisms of the argument by Alesina and Perotti (1996) can be applied to Japan or not.

V-1. Increase of Labor Cost due to the Increase of Wage Tax and Social Insurance Contribution

As another mechanism of the failure of fiscal reconstruction based on tax increase, Alesina and Perotti (1996) and Alesina et al. (2002) point out that the increase of wage tax and social insurance contribution raise labor cost and reduce corporate investment. However, in the comprehensive reform of social security and tax systems, the Japanese government plans to raise the necessary revenue for social security spending increase mainly by increasing the consumption tax (value-added tax) rather than wage taxes or social contributions. While the consumption tax may have similar economic effects to wage taxes, since the additional burden of the consumption tax increase is borne by not only workers but also existing asset holders, a higher consumption tax brings a relatively smaller increase of labor cost and distortion (Auerbach and Kotlikoff [1987]). Given the unavoidable social security spending increase due to the very rapid aging in Japan, the purpose of the Japanese comprehensive reform of social security and tax systems is to constrain growing future labor cost, so the argument of Alesina and Perotti (1996) and Alesina et al. (2002) cannot be applied to Japanese fiscal reconstruction with a consumption tax increase. The fact that Japanese corporate executives widely support the consumption tax increase proves our argument.

V-2. Political Difficulty of Consumption Tax Increase and Spending Cuts in Japan

Another explanation of Alesina and his coauthors is that governments can gain more public confidence in their fiscal consolidation by cutting public sector wages and transfer payments than by increasing taxes because the former measure is politically more difficult.

However, political scientists point out that the political difficulties of a tax increase in different countries are path-dependent. For example, Kato (2003) points out that while value-added tax (including the Japanese consumption tax) was relatively easily raised for social security expansion during the high economic growth periods of most Western European countries before the first oil shock, a much larger political difficulty of a value-added tax increase was observed in advanced countries such as Canada and Australia during the lower economic growth periods after the first oil shock.

In Japan, the introduction and increase of the consumption tax (value-added tax) brought the largest political cost to the political leaders. Prime Minister Masayoshi Ohira, who tried to introduce a “comprehensive consumption tax” lost the general election in 1979 and died in the midst of the following political conflict within his political party in 1980. Prime Minister Yasuhiro Nakasone proposed a “comprehensive sales tax,” but was criticized because it
contradicted his political promises in the previous election, and he withdrew the proposal. The next prime minister, Noboru Takeshita, could finally introduce the consumption tax of 3% rather than the originally-planned 5% in 1988. The very popular Prime Minister Morihiro Hosokawa proposed a new consumption tax called “Welfare Tax,” effectively equivalent to an increase of the existing consumption tax from 3% to 7%, but was forced to withdraw the proposal due to heavy criticism, and suffered a big drop in popularity in 1994. Another popular prime minister, Ryutaro Hashimoto, raised the consumption tax rate from 3% to 5% in 1997, but also suffered a big drop in popularity. Further, observing the exploding budget deficit, Prime Minister Naoto Kan proposed a consumption tax increase, but lost in the Upper House election and withdrew the proposal in 2010. Prime Minister Yoshihiko Noda finally succeeded in passing a bill including a gradual consumption tax increase from 5% to 10%, but lost the majority in the general election in 2012. The following prime minister, Shinzo Abe, raised the consumption tax rate from 5% to 8% as planned in 2014, but decided to postpone to 2017 the tax rate increase from 8% to 10% originally planned for 2015, and won the general election at the end of 2014. From this political experience, the consumption tax increase has been regarded as the most politically difficult agenda threatening the prime minister’s position. The political cost accompanying a consumption tax increase is far greater than a social welfare benefit cut or public sector wage cut.

With these political observations, Japanese voters and market participants know that a consumption tax increase is much more politically difficult, so that they recognize the politicians who support consumption tax increase have strong commitment toward fiscal reconstruction. In fact, the politicians who support the consumption tax increase are often called “fiscal hawks” in Japan. Thus, if a stronger commitment toward fiscal reconstruction reduces the interest rate and has positive effects on the economy, as Alesina and his coauthors claim, a politically difficult consumption tax increase is more favorable than politically easy spending cuts.

Similarly, IMF (2010) suggests the view that since a spending cut implies a stronger political commitment toward fiscal reconstruction than a tax increase, central banks have a more accommodating monetary policy in response to stronger political commitment when a government relies more on spending cuts in their fiscal reconstruction plan. However, as we explained above, this view cannot be applied to Japan, since a consumption tax increase implies far stronger political commitment toward fiscal reconstruction than a spending cut in Japan.

V-3. **Does the Central Bank Take a Tighter Monetary Policy when Indirect Tax is Increased?**

IMF Economic Outlook (2010) argues that when governments try to reduce budget deficits with an indirect tax increase, central banks that worry about inflation caused by the indirect tax increase take tighter monetary policies so that there are negative macroeconomic effects. Money demand due to transaction motives will increase when the price level increases...
by an indirect tax hike. If the central bank does not respond to higher money demand, the real money balance will decrease. Then, a tighter monetary policy will have negative macroeconomic effects given price and wage rigidity. Thus, it is essential for the central bank to take an accommodating monetary policy rather than a tighter monetary policy in response to a consumption tax increase in order to avoid negative macroeconomic consequences.

In Japan, CPI (except induced rent) increased by 2.9% (0.6% in the previous year) when the consumption tax with a 3% tax rate was introduced in 1989, and it increased by 2.2% (0.1% in the previous year), when the consumption tax rate was raised from 3% to 5% in 1997. Thus, the price level increased in response to the consumption tax increase in the past in Japan. This is not only because the appropriate shifts of consumption tax burden through the corresponding after-tax price increase were encouraged by the government but also because Bank of Japan did not worry about the price increase due to the consumption tax and conducted appropriate monetary policy. Thus, Japanese experience did not support the argument of IMF Economic Outlook (2010).

Also, in the recent consumption tax increase from 5% to 8% in April 2014, no tighter monetary policy was considered, since Bank of Japan was conducting very aggressive monetary policy called “quantitative and qualitative monetary easing,” in order to achieve 2% inflation target except effects of consumption tax increase. Even in the future monetary policy, the concern of IMF (2010) seems not important.

VI. Is there a Common Best Mix of Revenue-Increasing Measures and Spending Cuts in Fiscal Consolidation among Industrial Countries?

Many industrial countries have faced huge budget deficits in the past, but the reasons for them were different.

For example, the Netherlands faced a large budget deficit since it built a very generous social security system with increased revenue from North Sea oil and gas after oil shocks, while their industrial competitiveness was lost with higher labor cost and over-appreciated currency (“Dutch disease”). In 1982, the Wassenaar agreement between employers’ organizations and labor unions including wage cuts and work sharing was signed, and the Dutch government also implemented wage tax cuts and social contribution cuts in order to support labor cost cuts. After these policies, the economic growth rate increased and a budget surplus was achieved in 1999. The claims of Alesina and others fit well with this example of fiscal consolidation.

In Japan, while there is cyclical budget deficit due to the collapse of bubbles, the major part of a budget deficit is considered to be structural deficit caused mainly by the failure to secure necessary tax revenue to finance the rapid growing social security spending due to the rapid aging of the Japanese population. Tax smoothing theory calls for an early tax increase to constrain any future tax increase when an unavoidable spending increase is expected in the long run. Instead, the Japanese government continued to reduce income tax rates as a
conventional Keynesian fiscal policy. For example, Prime Minister Kozo Obuchi reduced individual income tax and corporate income tax heavily (about 6 trillion JPY) without securing fiscal resources. Even the increased revenue of the consumption-tax rise from 3 to 5% in 1997 was used to finance income tax cuts. The Annual Report on Japanese Economy and Public Finance (2012) points out that these irresponsible tax cuts are one of the most important factors in the huge budget deficits.

The Japanese huge structural budget deficit, caused by not only rapid growing social security spending but also irresponsible tax cuts, is very difficult to eliminate only with spending-side policies. A significant tax increase is necessary for effective fiscal consolidation. For example, IMF (2013) argues that it is necessary to have a budget deficit reduction equivalent to 11% of GDP until 2020 in order to contain the growing stock of government debt in Japan. The consumption tax increase from 5 to 10% will reduce the budget deficit only by 5.5% of GDP, so that the remaining budget deficit reduction that is equivalent to 5% of GDP should be achieved by further measures. IMF (2013) proposes a very ambitious spending cut plan including a 1% cut of non-social security spending, no increase of the nominal amount of social security spending, an increase in the minimum age for receiving the public pension benefit to 67 years old, and a benefit reduction for high income pensioners. Still, even if all of these measures are implemented, the budget deficit will decrease by only 3% of GDP. This means that at least a revenue increase equivalent to 2.5% of GDP is necessary until 2020. After 2020, high social security spending growth is expected, so a further revenue increase is necessary to keep fiscal sustainability.

As this proposal shows, even when a very drastic spending cut succeeds, it is impossible to reduce the Japanese budget deficit without significant revenue increase. This conclusion is natural since the Japanese tax burden (GDP ratio) is one of the lowest in industrial countries, while the spending is much larger than the current tax burden.

When different countries have different reasons for their huge budget deficits, it might be questionable to assume that there is a common best mix of revenue increase and spending cuts in fiscal consolidation. (Consider the problem of a doctor who only prescribes the same dose of aspirin to different patients who complain of headaches without examining the true causes of their headaches.) As Mauro (2011) points out, realistic fiscal consolidation strategies paying sufficient consideration to different social preferences and fiscal structure are necessary.

VII. Concluding Remarks

This article examines whether the argument made by Alesina and his coauthors regarding the best mix of spending cuts and revenue-increasing measures is applicable to Japan. Alesina and his coauthors question the effectiveness of fiscal consolidation centering on tax increases based on the arguments that (1) cuts in public sector wages lead to a decline in private sector wages and stimulate corporate investment, (2) a tax increase raises labor costs, and (3) governments can gain more public confidence in their fiscal consolidation by cutting public
sector wages and social security spending than by increasing taxes because the former measure is politically more difficult. However, these arguments are not applicable to Japan as follows: 1) in Japan, public sector wages are determined in accordance with private sector wages under the framework of recommendation by the NPA, while the impact of public sector wages on private sector wages is limited under the company-specific labor union system. This paper confirmed this point through the examination of Granger causality based on time series data on public sector wages and private sector wages as reported by the NPA; (2) The integrated reform of social security and tax systems is intended to curb an increase in social insurance premiums that directly affect labor costs by raising the consumption tax; (3) In Japan, political opposition to a consumption tax increase is stronger. It would be very problematic to oppose an early implementation of tax increases, including a consumption tax increase, based on the arguments cited by Alesina and his coauthors without adequately examining whether the underlying factors of the arguments are applicable to Japan.

We would like to stress that this conclusion does not mean that spending reduction is not important in fiscal consolidation in Japan. Since there are many wasteful spending programs such as some unnecessary public works, it is essential and urgent to cut existing wasteful spending and prevent new unnecessary spending policies.

However, since the increase of social security spending itself is unavoidable with the rapid aging of the population, Japanese fiscal consolidation should include many revenue increase measures, including a consumption tax increase. Postponing the consumption tax increase will not only increase the risk of fiscal crisis in Japan but also deteriorate intergenerational inequality. It is questionable to argue against the increase of consumption tax in Japan using Alesina’s claim without examining whether the mechanisms Alesina and his coauthors stress really matter in Japanese economy or not.

Unfortunately, Prime Minister Shinzo Abe postponed the consumption-tax increase from 8 to 10% scheduled for November 2014 without showing any concrete future fiscal consolidation plan. A steady fiscal consolidation strategy with sufficient consideration given to the true causes of the huge Japanese budget deficit is strongly desirable in order to avoid fiscal crisis in Japan.

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