

# Results of a Survey on Inflation Outlook of Firms in the Bank of Japan's "Short-term Economic Survey of Enterprises in Japan"

Takashi Muto<sup>1</sup>

## Abstract

Regarding inflation outlooks of firms, since March 2014, the Bank of Japan has introduced two new survey items – general prices and firms' output prices – in its Short-term Economic Survey of Enterprises in Japan (*Tankan*). No other surveys in Japan cover firms' mid- to long-term inflation expectations and no comparable surveys in other countries have as large a sample as the *Tankan* survey. These new survey items are expected to fill this information gap with respect to inflation expectations and to help with assessments of how monetary policy affects the inflation outlooks of economic entities. In this paper, two consecutive survey results (for March and June 2014) will be presented, and the following issues will be discussed: 1) whether the distribution of firms' inflation outlooks for general prices varies due to the firms' size and industry, 2) whether the firms' outlooks for their output prices affect the formation of their own inflation outlooks for general prices, and 3) whether the firms' inflation outlooks for general prices differ from those of households and economists.

Keywords: Business survey, inflation expectations

<sup>1</sup> Research and Statistics Department, Bank of Japan, E-mail: takashi.mutou@boj.or.jp.

The views expressed here are those of the author and do not necessarily represent the views of the Bank of Japan. The author is responsible for any errors or omissions.

## 1. Introduction

In March 2014, the Bank of Japan started a survey on the medium-to-long-term inflation outlooks of firms as part of *Tankan* ("Short-term Economic Survey of Enterprises in Japan"), which is one of the important information sources for the Bank of Japan in assessing the Japanese economy, and is also highly appreciated by a wide variety of entities. The new survey covers two kinds of inflation outlooks: "Outlook for Output Prices" and "Outlook for General Prices" (measured by the consumer price index). Its forecasting horizons are one year ahead, three years ahead, and five years ahead.

It is considered beneficial for the Bank of Japan to obtain additional information on inflation outlooks of economic agents. It is also highly relevant to its forecasts of economic activity and prices. Changes in real interest rates influence the spending decisions of households and firms, and changes in inflation outlooks have ramifications for actual inflation rates by affecting how firms price their products and set employees' wage levels.

The introduction of a survey on medium-to-long-term inflation outlooks of firms in the *Tankan* survey is expected to fill an information gap in surveys on inflation outlooks in Japan. There were no inflation outlook surveys in Japan that ask firms for their views on medium-to-long-term inflation before (Table 1). In addition, the *Tankan* survey is considered the best platform to collect information on the inflation outlooks of firms in terms of its accuracy. First, its sample size is very large. There are 10,427 sample firms (as of the June 2014 survey). There are no comparable surveys in other countries, to the best of my knowledge, that have as large a sample as the *Tankan* survey. Secondly, its response rate is very high compared with other business surveys in Japan and is consistently around 99%.

In section 2, the background to the new survey is explained. The questionnaires and the sample firms of the new survey are described. In section 3, the results of the new survey are presented. The following topics are mainly discussed: 1) "Does the distribution of firms' inflation outlooks for general prices vary due to firms' size and industry?," 2) "Do the firms' outlooks for their output prices affect the formation of their own inflation outlooks for general prices?," 3) "Do the firms' inflation outlooks for general prices differ from those of households and economists?" Section 4 provides concluding remarks.

## 2. New Survey on Inflation Outlook of Firms in Japan

### Questionnaires and Responding Format

The new survey items are "Outlook for Output Prices" and "Outlook for General Prices" (Table 2). The survey on "Outlook for Output Prices" asks firms about their expectations of the rate of price changes relative to the current level with respect to their mainstay domestic products and services. The definition for output prices is the same as the one adopted in the *Tankan* item on short-term changes (over three months ahead) in output prices. The other survey item is "Outlook for General Prices," which asks firms about their expectations of the annual percentage change in general prices as measured by the consumer price index. While the consumption tax rate in Japan increased from 5 to 8% in April 2014 and an additional hike of the

consumption tax rate is planned by the government for October 2015, the respondents are asked to exclude the effects of changes due to the consumption tax hike. The forecasting horizons for these survey items are one year ahead, three years ahead, and five years ahead.

The responding format is designed for the respondents to indicate the range of inflation outlook nearest to their own expectation from the nine or ten response options given (e.g., "around +6% or higher," "around +5%," ..., "around -3% or lower") for both "Output Prices" and "General Prices" survey items. A numerical range is added to each response option (e.g., "+4.5 to +5.4%" or "around +5%") to clarify the range of inflation rates that each response option is intended to cover.<sup>2</sup> The sample firms can choose the option of "Don't know" or "Don't have a clear view" when they find it difficult to choose one of the indicated inflation figures.

### Sample firms of the New Survey

Sample firms of the new survey are equivalent to the *Tankan*. They are selected from the approximately 210,000 population firms, which are private firms (excluding financial institutions) with capital of 20 million yen and more. The sample firms are selected from them by industry and size classifications under certain statistical criteria that have been set to statistical accuracy and other measuring instruments. There are 10,427 sample firms as of the June 2014 survey.

The sample firms are classified into 93 strata by size and industry (Table 3). In particular, they are categorized into large firms (capital with 1 billion yen and more), medium-sized firms (capital with 100 million yen to less than 1 billion yen), and small firms (capital with 20 million yen to less than 100 million yen) based on the size of capital. In addition, they are divided into 31 industries (17 industries in manufacturing and 14 industries in nonmanufacturing), following the "Japan Standard Industrial Classification" released by the Ministry of Internal Affairs and Communications.

## 3. Survey Result

Table 4 depicts the average inflation outlook for general prices of the June 2014 survey, which is the weighted average by response percentage. There are about 10,200 reporting firms. The average inflation outlook for all firms rises gradually from 1.5% (one year ahead) to 1.7% (five years ahead) as the forecasting horizon increases. The difference between the average inflation outlooks for different sizes is comparatively large. Specifically, the average inflation for small firms is higher than that for large firms by as much as about 0.6% points. In contrast, there is little difference in the average inflation outlook between basic materials (8 industries of

<sup>2</sup> This setting reflects comments from the public. Each option was originally expressed as a numerical range between two integers indicating annual inflation, e.g., "0% to +1%." However, a number of experts argued that the majority of firms are likely to formulate their inflation outlooks around an integer percentage (e.g., "around 0%") and these firms would pick a numerical range which has the firms' true inflation outlook as the lower end of the range (e.g., "0% to +1%") and thus the result could be interpreted with an upward bias. To address this issue, each response option is now expressed as "around (integer) %" (e.g., "around 0%").

manufacturing), processing (9 industries of manufacturing), and nonmanufacturing. Because a similar observation applies to the results of the March 2014 survey, which are shown in the brackets, the discussion below is focused on the results of the June 2014 survey.

Does the distribution of firms' inflation outlooks for general prices vary due to firms' size and industry?

A significant difference between the distributions of inflation outlooks for "General Prices" of different sizes is also observed. First, the distributions of small firms and medium-sized firms are right-skewed to those of large firms (Chart 1). While the mode of their distributions is "around +1%" with respect to medium-sized firms and large firms, that of small firms is "around +1%" for one year ahead, and "around +2%" for three years ahead and five years ahead. In addition, the right tails of the distributions of small and medium-sized firms are much heavier than those of large firms. Secondly, the percentage share of the large firms choosing "Don't have a clear view," instead of choosing one of the indicated inflation outlooks, is much higher than that of small firms and medium-sized firms. These characteristics also hold in the inflation outlooks for "Output Prices (Chart 2)."

On the other hand, the distributions of inflation outlooks for "General Prices" of "Basic materials (8 industries)," "Processing (9 industries)," and "Nonmanufacturing (14 industries)" are very similar in slight contrast to those for "Output Prices" (Chart 3 and Chart 4). However, looking more carefully into the inflation outlooks of different industries, there are variations in the distribution of inflation outlooks for 31 industries. For example, the average inflation outlooks for "General Prices" are distributed in the range from about +1% to about +2.5% (Chart 5).

Do the forecasts of firms' output prices affect the formation of their own inflation outlooks for general prices?

Chart 6 shows the scattered plots of inflation outlooks for "Output Prices" and "General Prices" among 31 industries. As for small firms and medium-sized firms, the comparatively high correlation between the average inflation outlooks for "Output Prices" and "General Prices" is observed. This implies that the industries which have higher expectations for "Output Prices" forecast higher inflation for "General Prices." However, with respect to the large firms, there is little correlation.

Do the firms' inflation outlooks for general prices differ from those of households and economists?

Table 5 is a comparison of average inflation outlook for "General Prices" with other major surveys in Japan on inflation outlook for "General Prices" of households and economists. In comparison with a survey on economists, the average inflation outlook of firms in the new survey (*Tankan*) is higher than that of economists in "ESP Forecast," which is conducted by Japan Center for Economic Research with forecast horizons of one year ahead and five years ahead. The inflation outlooks of economists are similar to those of large firms, which are much lower than small firms and medium-sized firms. This observation is consistent with the fact that large firms often refer to economists' forecasts of economic and price developments, which can be considered one of the reasons for the disparity between inflation outlooks of small firms and large firms explained above.

On the other hand, in comparison with a survey on households, the average inflation outlook of firms in the new survey (*Tankan*) is lower than that of households in “Opinion Survey on the General Public’s Views and Behavior (Opinion Survey),” which is conducted by Bank of Japan with forecast horizons of one year ahead and five years ahead.

## 4. Concluding Remarks

In this paper, the new survey results on inflation outlooks are discussed. The following characteristics of the new survey results are presented. First, the average inflation outlooks for “General Prices” rise gradually as the forecasting horizon increases from 1.5 to 1.7%. Secondly, the size of a firm appears to affect the inflation outlook significantly. The distributions of the inflation outlooks for both “General Prices” of small firms and medium-sized firms are right-skewed to that of large firms. Thirdly, the difference between the distributions of the inflation outlook for “General Prices” of different industries is also observed, though not to the extent of the variation between different sizes. The distributions of “Basic materials (8 industries),” “Processing (9 industries),” and “Nonmanufacturing (14 industries)” are very similar. However, there seems to be a difference between the average inflation outlooks of 31 industries. With respect to small firms and medium-sized firms, except large firms, the industries which have higher expectations of “Output Prices” tend to forecast a higher inflation for “General Prices.” Finally, in comparison with major surveys in Japan on inflation outlook for “General Prices” on households and economists, the inflation outlooks of firms are in between those of households and economists. The inflation outlooks of firms are lower than those of households and higher than those of economists.

All statistics inevitably have peculiarities and certain patterns which are not related to the economic conditions of the time and which need to be taken into account when the statistics are used. Deepening the users’ understanding of the characteristics and statistical peculiarities by survey item will allow the users to assess inflation outlooks of firms more accurately. However, it is too early to judge that the characteristics above, which are observed in only two surveys, are such peculiarities, mainly due to the short history of the surveys. In order to conduct the time-series analysis on correlations between inflation outlook of firms and economic variables, we should wait for the survey results to accumulate.

## References

Bank of Japan (2013), “Planned Revisions of the Tankan Survey – Review of survey items, including the introduction of a survey on Inflation Outlook of Firms –,” Research and Statistics Department, *BOJ Reports & Research Papers*, March

Shusaku Nishiguchi, Jouchi Nakajima, and Kei Imakubo (2014), “Disagreement in households’ inflation expectations and its evolution,” *Bank of Japan Review* 2014-E-1

## Major Surveys on Inflation Outlooks in Japan

Table 1

		Forecast Horizons	
		Short-term (1 year or less)	Medium to long term (2 to 10 years)
Households	<ul style="list-style-type: none"> <li>• Opinion Survey (1 year) &lt;Bank of Japan&gt;</li> <li>• Monthly Consumer Confidence Survey (1year) &lt;Cabinet Office &gt;</li> </ul>		<ul style="list-style-type: none"> <li>• Opinion Survey (5 years)&lt;Bank of Japan&gt;</li> </ul>
Business	<ul style="list-style-type: none"> <li>• <i>Tankan</i> (3 months)*&lt;Bank of Japan&gt;</li> <li>• Business Outlook Survey (3, 6 months) &lt;Cabinet Office &amp; Ministry of Finance&gt;</li> <li>• Annual Survey of Corporate Behavior (1 year)&lt;Cabinet Office&gt;</li> </ul>		<u>Not available</u>
Economists	<ul style="list-style-type: none"> <li>• ESP Forecast (1 year) &lt;Japan Center for Economic Research&gt;</li> <li>• Consensus Forecast &lt;Consensus Economics&gt;</li> </ul>		<ul style="list-style-type: none"> <li>• ESP Forecast (2, over 5 years) &lt;Japan Center for Economic Research&gt;</li> <li>• Consensus Forecast &lt;Consensus Economics&gt;</li> </ul>

Note 1: \* denotes that the question on short-term changes (over 3 months ahead) in output prices has been asked in the past.

Note 2: The entities which conduct each survey are shown in brackets.

Overviews of the New Survey on Inflation Outlooks of Firms

Table 2

Survey Items	<p>"Outlook for Output Prices" (rate of price changes relative to the current level)</p> <p>"Outlook for General Prices" (annual % change)</p>
Forecast Horizons	1 year ahead, 3 years ahead, 5 years ahead
Sample Firms	<p>Equivalent to the sample firms of the current <b>Tankan</b> ("The Short-term Economic Survey of Enterprises in Japan")</p> <p>(10,427 firms as of June 2014)</p>
Questionnaire	<p>[Question] Relative to the current level, what are your institution's expectations of the rate of price changes in your mainstay domestic products or services for one year ahead, three years ahead, and five years ahead, respectively? Please select the range nearest to your own expectation from the options below.</p>
	<p>[Options]</p> <p>Rate of change relative to the current level</p> <ol style="list-style-type: none"> <li>1. around +20% or higher (+17.5% or higher)</li> <li>2. around +15% (+12.5 to +17.4%)</li> <li>3. around +10% (+7.5 to +12.4%)</li> <li>4. around + 5% (+2.5 to + 7.4%)</li> <li>5. around 0% (-2.5 to +2.4%)</li> <li>6. around - 5% (-7.5 to -2.6%)</li> <li>7. around -10% (-12.5 to -7.6%)</li> <li>8. around -15% (-17.5 to -12.6%)</li> <li>9. around -20% or lower (-17.6% or lower)</li> <li>10. Don't know.</li> </ol>
	<p>[Question] What are your institution's expectations of the annual % change in general prices (as measured by the consumer price index) for one year ahead, three years ahead, and five years ahead, respectively? Please select the range nearest to your own expectation from the options below.</p>
	<p>[Options]</p> <p>In annual % rate change</p> <ol style="list-style-type: none"> <li>1. around +6% or higher (+5.5% or higher)</li> <li>2. around +5% (+4.5 to +5.4%)</li> <li>3. around +4% (+3.5 to +4.4%)</li> <li>4. around +3% (+2.5 to +3.4%)</li> <li>5. around +2% (+1.5 to +2.4%)</li> <li>6. around +1% (+0.5 to +1.4%)</li> <li>7. around 0% (-0.5 to +0.4%)</li> <li>8. around -1% (-1.5 to -0.6%)</li> <li>9. around -2% (-2.5 to -1.6%)</li> <li>10. around -3% or lower (-2.6% or lower)</li> </ol> <p>※If you have no clear views on general prices, please select one of the three following reasons.</p> <ol style="list-style-type: none"> <li>11. Uncertainty over the future outlook is high</li> <li>12. Not really conscious of inflation fluctuations because they should not influence the strategy of the institution.</li> <li>13. Other</li> </ol>
Outlook for Output Prices	
Outlook for General Prices	

## Number of Sample Enterprises

(as of June 2014)

Table 3

			Large Firms	Medium-sized Firms	Small Firms
Manufacturing (17 industries)			1,143	1,119	1,917
Basic Materials (8 industries)	1) Textiles, 2) Lumber & Wood products, 3) Pulp & Paper, 4) Chemicals, 5) Petroleum & Coal products, 6) Ceramics, Stone & Clay, 7) Iron & Steel, 8) Nonferrous metals		374	373	728
Processing (9 industries)	1) Food & Beverages, 2) Processed metals, 3) General-purpose machinery, 4) Production machinery, 5) Business oriented machinery, 6) Electrical machinery, 7) Shipbuilding, Heavy machinery, & Other transportation machinery, 8) Motor vehicles, 9) Other Manufacturing		769	746	1,189
Nonmanufacturing (14 industries)	1) Construction, 2) Real Estate, 3) Goods rental & Leasing, 4) Wholesaling, 5) Retailing, 6) Transport & Postal activities, 7) Communications, 8) Information Services, 9) Other information Communications, 10) Electric & Gas utilities, 11) Services for businesses, 12) Services for individuals, 13) Accommodations, Eating & Drinking Services, 14) Mining & Quarrying of stone and gravel		1,136	1,736	3,376



## Average of Firms' Inflation Outlook

(June 2014 Survey)

Table 4

	Large Firms			(Annual Percent Rate Change. %) Small Firms		
	1 year ahead	3 years ahead	5 years ahead	1 year ahead	3 years ahead	5 years ahead
Manufacturing	1.1 (1.1)	1.2 (1.3)	1.2 (1.3)	1.7 (1.7)	1.8 (1.9)	1.9 (1.9)
Basic materials	1.1 (1.2)	1.2 (1.4)	1.1 (1.3)	1.8 (1.8)	1.9 (1.9)	2.0 (2.0)
Processing	1.1 (1.0)	1.2 (1.2)	1.3 (1.2)	1.6 (1.6)	1.8 (1.8)	1.9 (1.9)
Nonmanufacturing	1.1 (1.1)	1.2 (1.3)	1.2 (1.2)	1.7 (1.7)	1.8 (1.9)	1.9 (1.9)
All Industries	1.1 (1.1)	1.2 (1.3)	1.2 (1.3)	1.7 (1.7)	1.8 (1.9)	1.9 (1.9)
	All Firms					
	1 year ahead	3 years ahead	5 years ahead			
All Industries	1.5 (1.5)	1.6 (1.7)	1.7 (1.7)			

Note: () denotes a result of the March 2014 Survey.

## Difference of Average Inflation Outlook between Firms, Households, and Economists

Table 5

Survey	Period	Agents	Forecasting Horizons	
			1 year ahead	5 years ahead
<i>Tankan</i> (Bank of Japan)	2014 June	Firms	1.5%	1.7%
Opinion Survey (Bank of Japan)	2014 June	Households	4.2%	3.5%
ESP Forecast (Japan Center for Economic Research)	2014 June	Economists	1.0%	1.4%*

Note 1: Respondents of the surveys are asked to exclude the effects of the increase in the consumption tax rate in their reply.

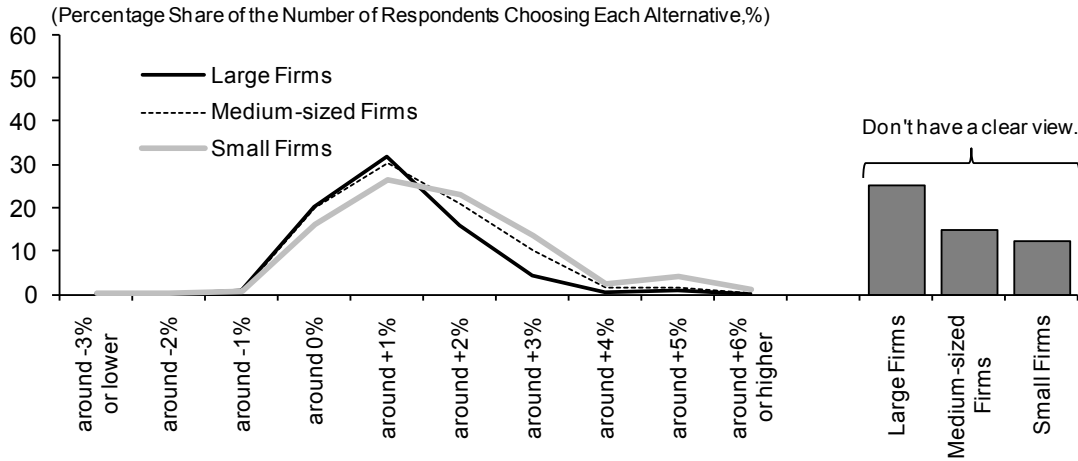
Note 2: \* depicts the average of the inflation outlook from Fiscal 2016 to Fiscal 2020.

Comparison in Distribution of Inflation Outlook on "General Prices" (Size)

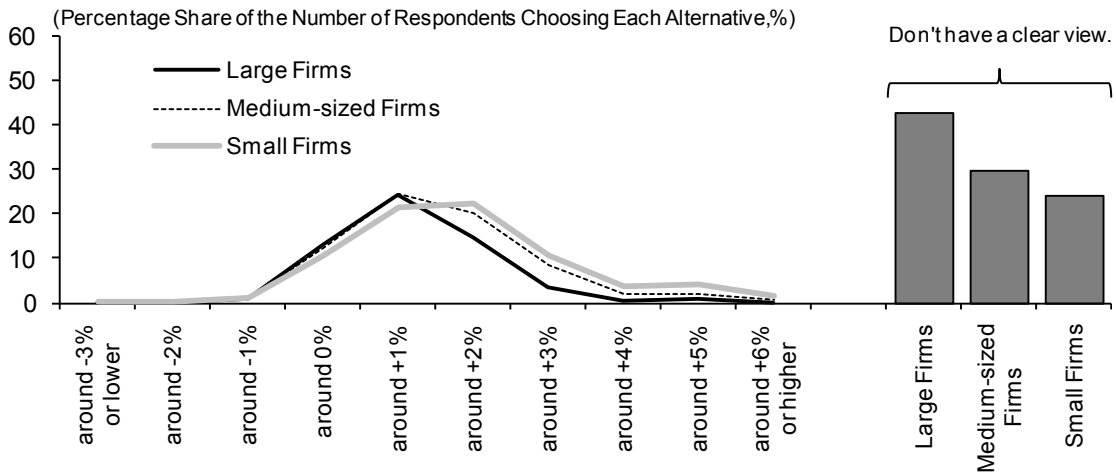
(June 2014 Survey)

Chart 1

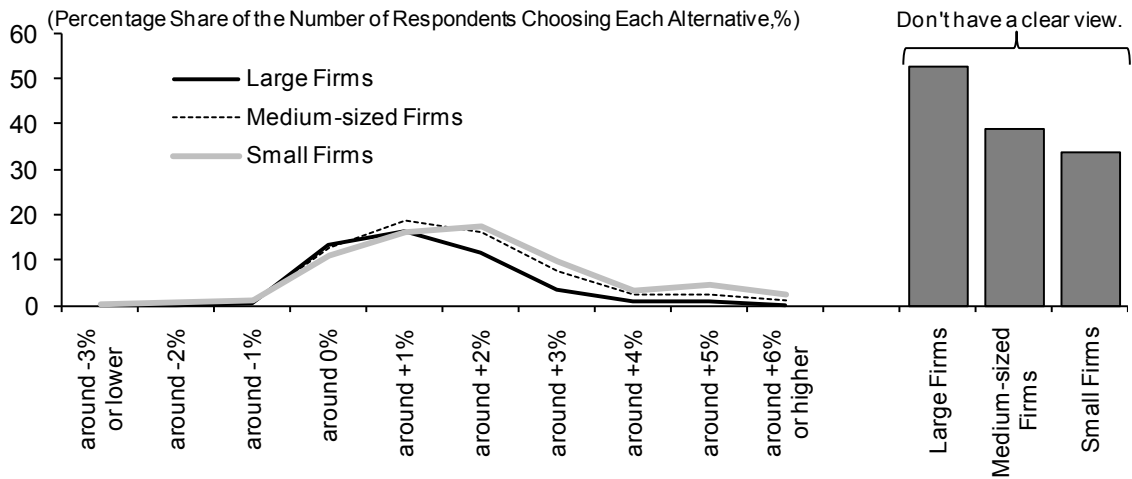
(a) Outlook for 1 Year Ahead



(b) Outlook for 3 Years Ahead



(c) Outlook for 5 Years Ahead

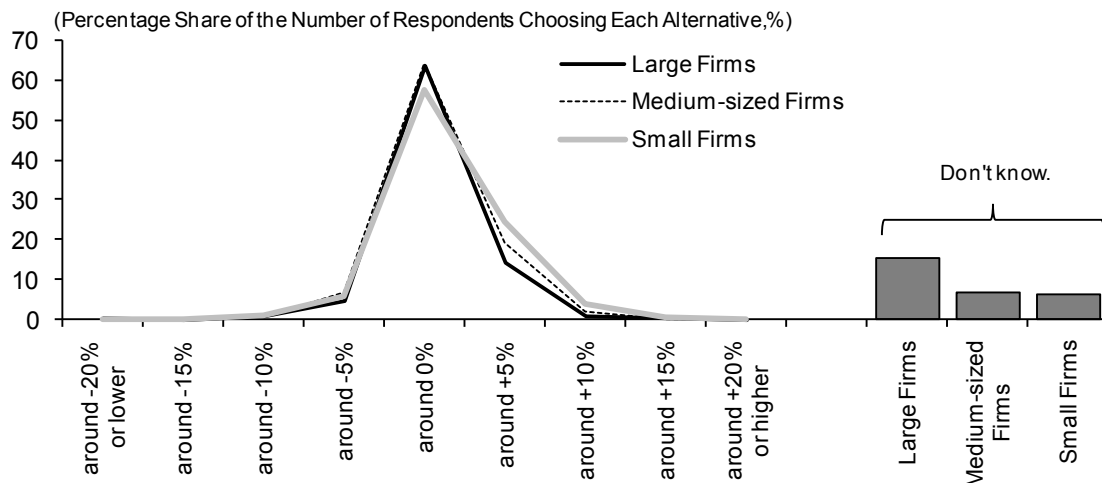


Comparison in Distribution of Inflation Outlook for "Output Prices" (Size)

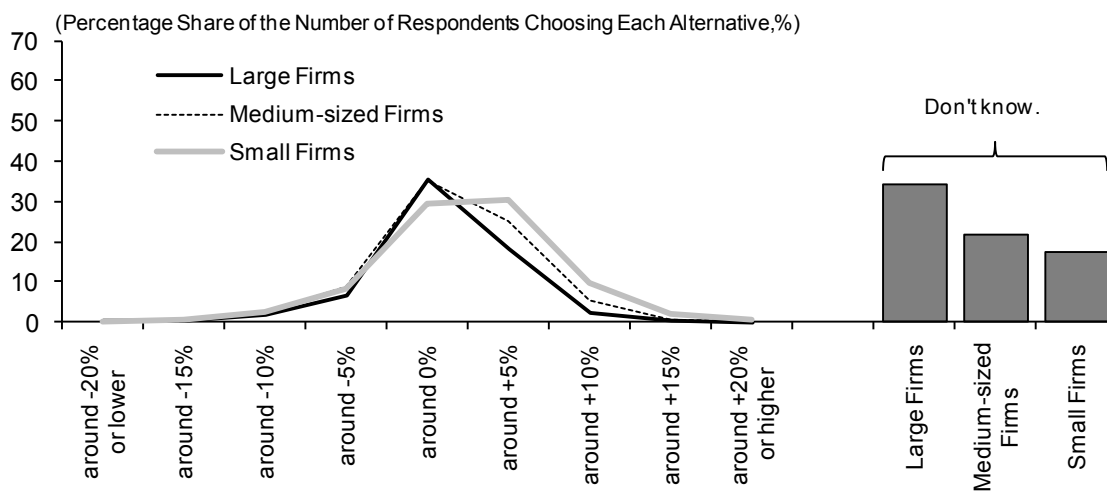
(June 2014 Survey)

Chart 2

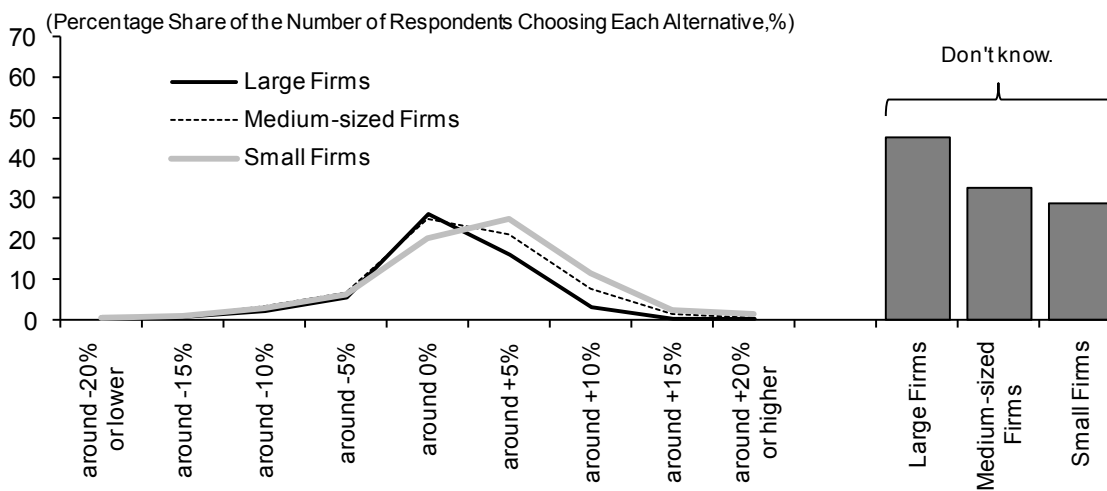
(a) Outlook for 1 Year Ahead



(b) Outlook for 3 Years Ahead



(c) Outlook for 5 Years Ahead

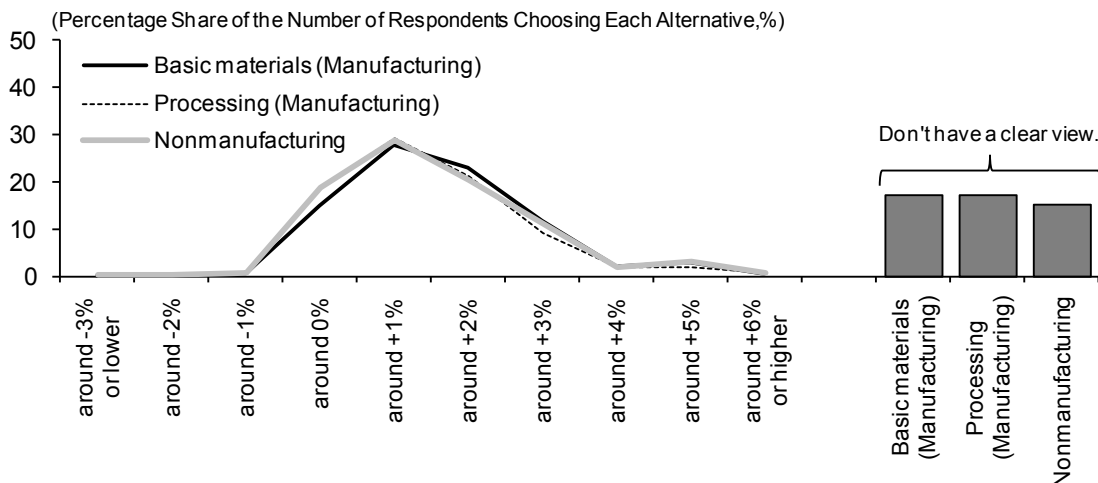


## Comparison in Distribution of Inflation Outlook for "General Prices" (Industry)

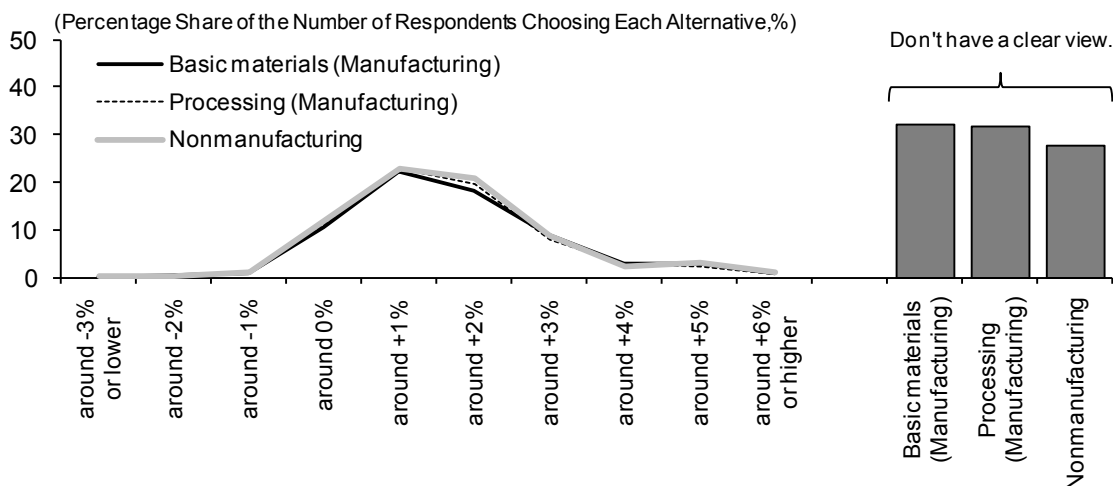
(June 2014 Survey)

Chart 3

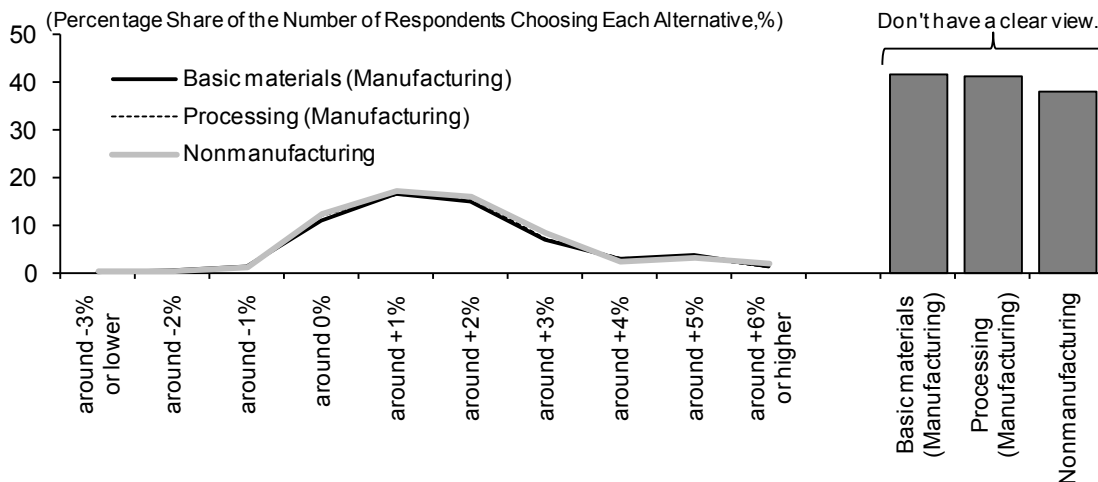
(a) Outlook for 1 Year Ahead



(b) Outlook for 3 Years Ahead



(c) Outlook for 5 Years Ahead

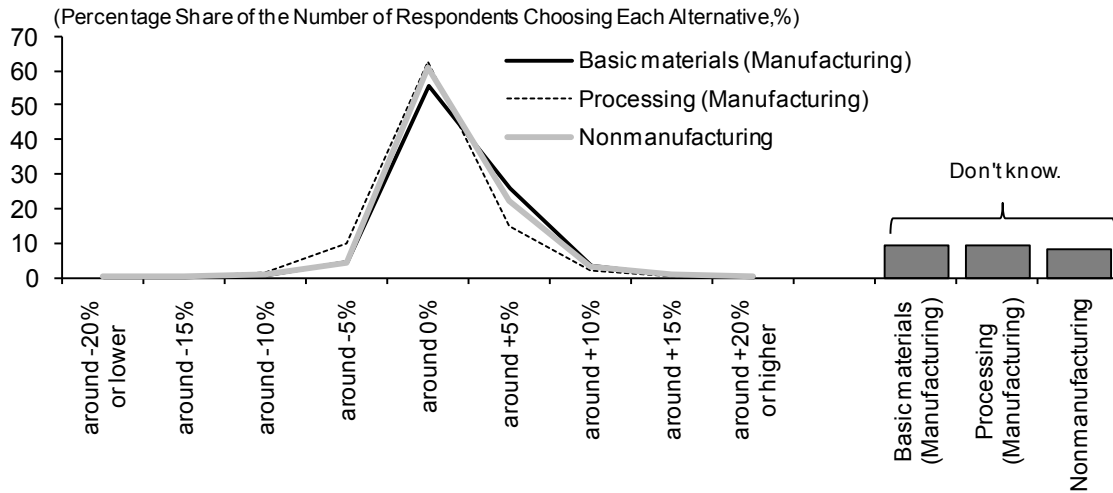


Comparison in Distribution of Inflation Outlook for "Output Prices" (Industry)

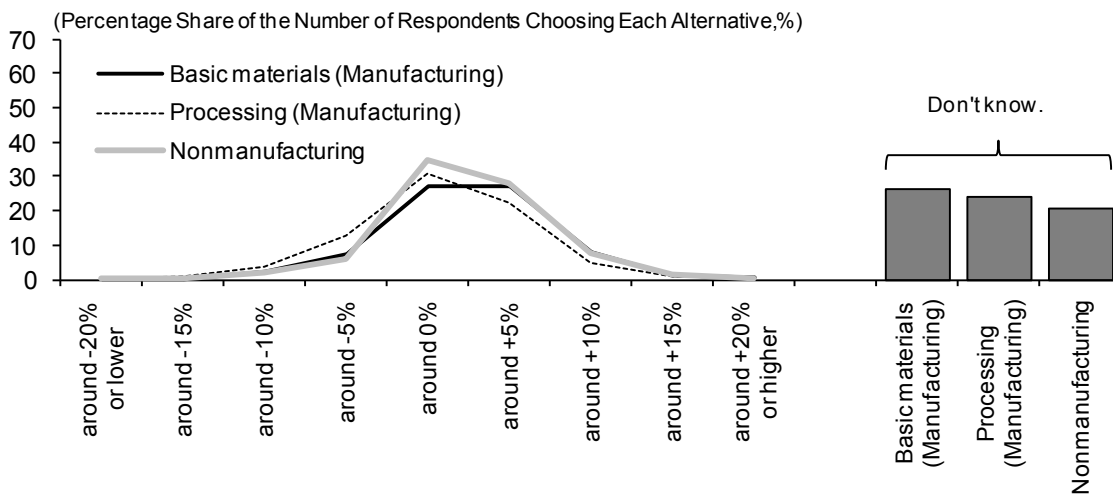
(June 2014 Survey)

Chart 4

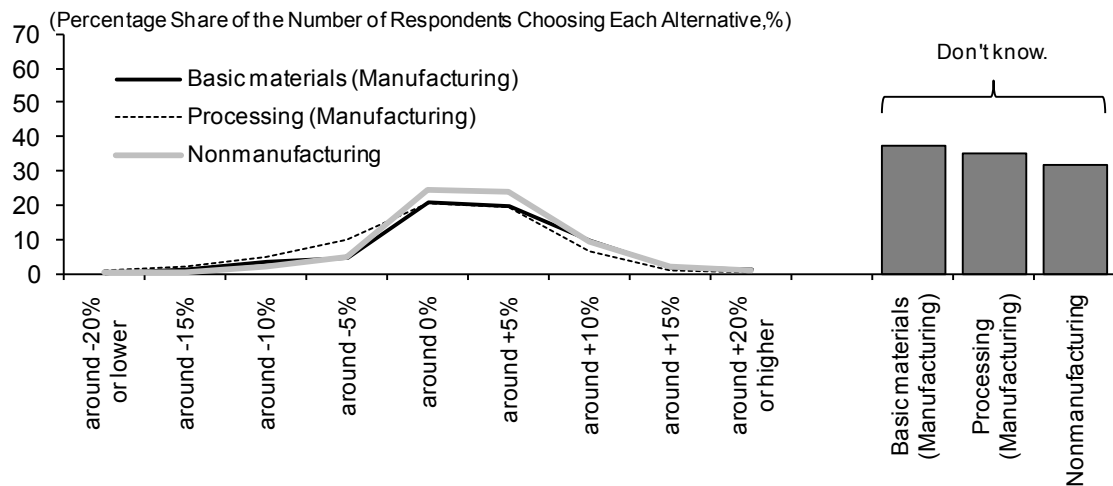
(a) Outlook for 1 Year Ahead



(b) Outlook for 3 Years Ahead



(c) Outlook for 5 Years Ahead

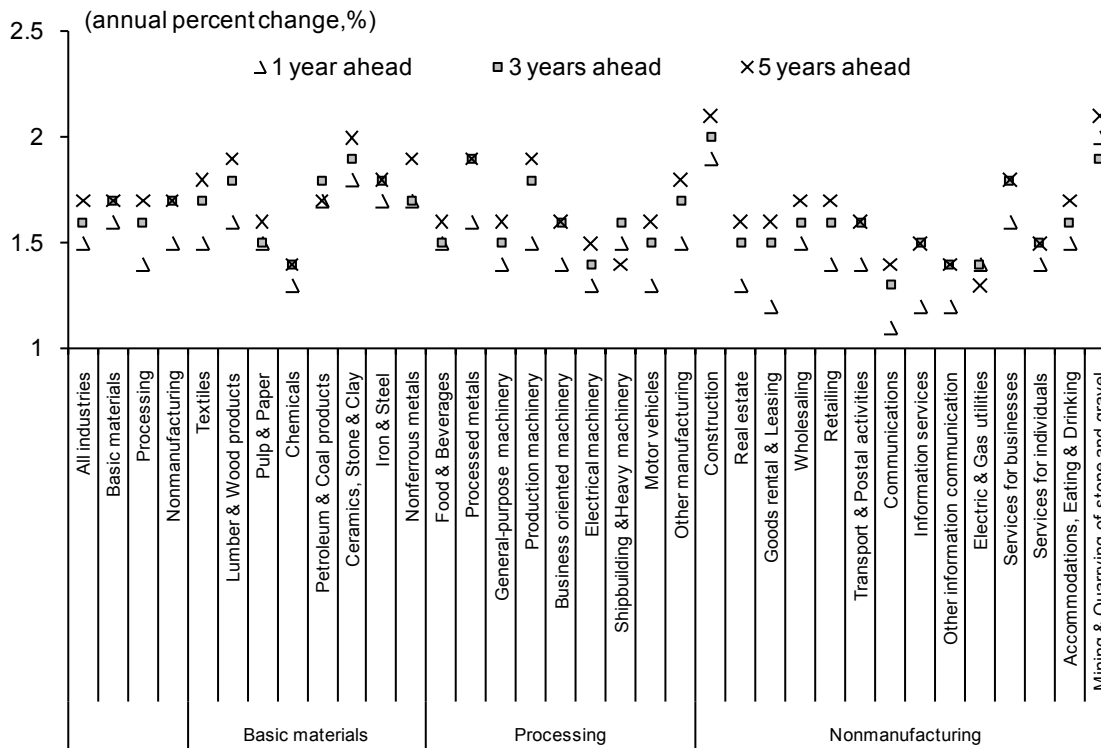


# Comparison between Average Inflation Outlook of 31 industries

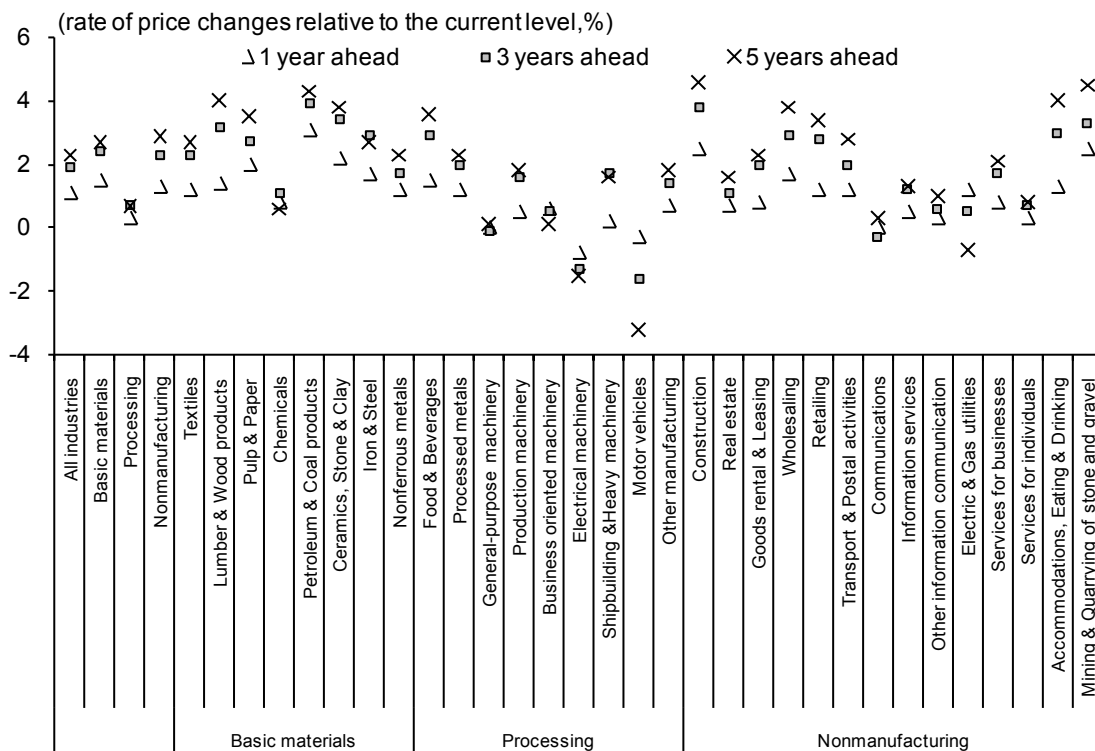
(June 2014 survey)

Chart 5

(a) Average Inflation Outlook for "General Prices"



(b) Average Inflation Outlook for "Output Prices"



## Relation between Inflation Outlooks for "Output Prices" and for "General Prices"

(June 2014 survey)

Chart 6

