HOW DO FIRMS FORM THEIR EXPECTATIONS?
NEW SURVEY EVIDENCE

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ONLINE APPENDIX

APPENDIX 1

Survey design[1]

1. Sampling frame

The firm names and their basic details were purchased from the Kompass New Zealand (KNZ) and Knowledge Management Services (KMS) databases. To get details about all existing firms with more than 6 workers in New Zealand, we use both databases. Following the ANZSIC 2006, firms were randomly chosen from four broad industries: manufacturing, retail and wholesale trade, construction and transportation, and professional and business services. We targeted 2/3 of the sample of firms from manufacturing and professional and business services since these industries have relatively large shares of GDP. The remaining one third is a combination of firms from other industries.

We started the firm selection process by first computing the proportion of firms in New Zealand that fall into each employment size group (6 to 19 workers, 20 to 49 workers and >50 workers) for each sector. This data is readily available in Statistics New Zealand. http://nzdotstat.stats.govt.nz/wbos/Index.aspx#. The employment size groups for each sector is reported in Appendix Tables 1.1.1 and 1.1.2. The KNZ and KMS databases provide us with information about the firm size. We used this information to match the survey sampling frame with the population of firms in the economy. For example, the manufacturing industry in 2012 had around 67 percent of firms in the employment size group of 6 to 19 workers, 21 percent in the 20 to 49 workers and 12 percent in greater than 50 workers. Our population in manufacturing industry contained similar proportions.

We selected firms from the databases as follows. There are 5409 firms in the manufacturing sector in NZ. From this population, we did several random draws of 5000 firms in each case. We selected a sample that is representative in terms of employment size groups and sub-sectors. The share of firms in each employment size group is similar to the Statistics New Zealand. Data on the share of firms in each employment size group for each sub-sector is not available, so we ensure there are firms from each subsector. Similar approach was used to select firms from other industries. Appendix Tables 1.1.3 and 1.1.4 provide information on employment size groups for each sector in the sampling frame of our survey. The industry/size composition of the sampling frame is very similar to the composition of population.

We invited all 15,000 firms to participate in the survey. In the first phase of this survey, we focused on manufacturing firms. The first round of calls provided us with a response of around 450 firms (manufacturing). To increase the sample of firms, we rang (2^{nd} call) all the remaining manufacturing firms to seek their interest to participate. The second round of calls yielded around 600 responses. After the second-round call, we examined the responses received so far in regards to the employment size groups and sub-sectors. To further increase the sample of manufacturing firms, we looked at the sub-sectors and employment size groups where responses were low. We then targeted approaching/interviewing all the firms in the specific sub-sectors and employment size groups where responses were low. The final sample for manufacturing is 997 firms. The second and third phases involved similar procedures with firms from the professional financial services, and transportation and construction industries, respectively. We keep only fully completed surveys. Respondents were not paid to participate in the survey. Appendix Table 1.1.5 provides information on responses achieved according to each employment size group and sector. Appendix Table 1.1.6 shows response rate by industry/size cells.

In wave 5 of the survey, we replenish firms in the survey and keep only 150 randomly selected firms that participated in survey wave 1. In the process of replenishing firms, we generally use the approach for

[1] The survey is not funded by or otherwise related to the Reserve Bank of New Zealand.

survey wave 1. For example, in a very few cases (subsectors), we added new firms that were not in the sampling frame of the first wave to construct a sampling frame for wave 6. Appendix Table 1.1.7 shows the composition of firms in terms of sector/size in the sampling frame and the population. The composition is similar. The key difference between the survey design for waves 1 and 5 is the treatment of large firms. In contrast to the first wave, our target in wave 5 was to get high response rates from larger firms. Therefore, attempts to recruit smaller firms to participate in the survey were only once. Medium and larger firms were contacted at most 10 times to participate in the survey. As a result, the response rate for smaller firms is about 6 percent (given the large number of firms in this size category, we have sufficiently many responses), while the response rate for larger firms is 30 to 40 percent (see Appendix Table 1.1.8). In wave 6 of the survey, we contacted firms that participated in survey wave 6. The attrition rates are close to 25% and the distribution of rates across sectors is generally similar.

2. Construction of weights

Once the survey is complete, we construct a set of weights to ensure that our results are representative of the whole economy. Specifically, we group firms into cells defined by firm size and industry. For the industry dimension, we use 3-digit ANZ SIC industry level of aggregation. For the firm size dimension, we consider four groups: 6 to 9 employees, 10 to 19 employees, 20-49 employees, 50 or more employees. Using data from Statistics New Zealand, we calculate total population employment for each cell. Then we calculate total employment in a cell for firms that participated in the survey. The weight for a firm in a given cell is set to the total population employment divided by the total sample employment in the cell. To avoid extreme weights, we cap weights at 100 whenever necessary. As a result, when weights are applied, the role of surveyed firms in a cell is amplified/attenuated so that we match the importance of the cell for aggregate economy. Given the design of the survey, weighted and unweighted moments tend to be very similar.

3. Validation of survey responses

Because firms have no direct incentive to participate in the survey or to provide thoughtful or truthful answers, one may be concerned about the quality of the responses to the questions. To ascertain the quality of the survey responses, we considered a number of checks.

The first is to directly verify the quality of those responses which can be checked against other sources. For example, respondents were asked about the age of their firm. Since firms must be registered with the government, we can check administrative records to verify whether the reported age of the firm and administrative records conform. We performed this check for all firms in the survey and found that, for 87% of the firms in the sample, the reported age of the firm conformed to administrative records. When the two did not match, we inquired with the general managers as to the source of the mismatch. In almost all cases, the source of the difference was either that the firm had been registered before it started operating or that there had been a change in ownership. There were only three cases in which general managers had made a mistake as to the age of the firm, a “mistake” rate of less than one-tenth of one percent.

A second response provided by firms which we could independently verify was the stated price of their main product. Because some firms maintain an online presence that includes prices of their goods, we verified two forms of firms’ responses. First, does the firm actually sell the good which they claimed constitutes their primary revenue-generating product? For the 300 (randomly selected) firms for which we performed this check, only forty-seven did not explicitly list their main product on their website. We then called each of these firms to verify that they indeed sell the product. There were six firms for which we found that the product was not sold by the firm, a “mistake” rate of 2%. Second, we verified the listed price of the good online against the price reported in the survey. Out of the 300 firms we checked, many did not have prices listed online. In these cases, we verified via online enquiries what price was available

for the "main product" in the survey. There were 55 firms for which we were not able to verify prices. For the remaining 245 firms for whom we could either identify prices on their websites or via direct online enquiry, only nine reported prices different from those in the follow-up survey, a "mistake" rate of 3.7%.

A third response which we could asses was whether the firm exports products or services abroad. To verify this, we again checked 300 firms. Of these 300 firms, 87 claimed in the survey to receive a positive share of revenues from foreign sales. We visited the websites of the 300 firms to determine whether they appeared to export products or services. For the 213 firms who claimed no foreign sales, only four reported clear export availability on their websites. Of the 87 firms who claimed foreign sales, we checked their websites to determine whether they appeared to export. If this could not be verified from the website, we then called the firms to enquire about their ability to sell products and services abroad. Only seven of the 87 firms reported that they do not export despite having claimed positive shares of foreign sales in the survey. Jointly, this again yields a "mistake" rate of 3.7%.

Another dimension of the survey that we could independently verify is the quality of answers to questions about individual characteristics of the survey respondent, primarily from the third wave of the survey. Many firms maintain an online profile of their staff, especially directors and managers. We randomly selected 10 percent of respondents from the third wave of the survey to assess whether the responses given by them about their position, qualifications and experiences were consistent with the publicly available data. We were unable to find names (position details) of only around 5% (8%) of the survey respondents. This is because some firms do not have an online profile of their staff. For those that had online details about qualification and experiences of their staff, we found a very strong match with the survey responses ($\approx$99%).

In addition to verifying firms' survey responses against outside sources, we can also assess the internal consistency of their responses. For example, the survey includes a question about the *average* frequency at which firms review their prices, which we convert to an average number of months between price reviews, and also includes questions about their actual prices over the previous twelve months. Specifically, we asked firms to report their current price as well as their price three months, 6 months, 9 months and 12 months prior. From this last set of questions, we can measure the number of times prices were changed at this quarterly frequency. One would expect that firms who report higher frequencies of price reviews should, on average, report more frequent price changes as well. We test this in our data by regressing the number of price changes over the previous twelve months on the average number of months between price reviews from the main survey. The results are reported in Panel A of Appendix Table 1.3.1. Longer durations between price reviews are negatively related to the number of price changes reported by firms for the previous twelve months, even with industry fixed effects or the use of sampling weights.

Second, we can verify whether firms report the same answers in response to the same question across the two surveys. We do this in two ways. The first is that, in both surveys, we asked firms to report the average frequency of price reviews. We can then compare whether firms report the same answer across surveys. As documented in Panel B of Appendix Table 1.3.1, the coefficient on the time between price reviews in the main survey is approximately one, and the R^2 is extremely high. A second way comes from the fact that we ask firms to report their prices at 3-month intervals going back one year in each survey. Because the surveys are separated in time by less than a year, there are overlapping periods for which firms reported prices in the first two waves of the survey. We can then assess whether these prices are consistent across the two surveys. As documented in Panel C of Appendix Table 1.3.1, when we regress prices in the follow-up survey on those in the main survey for these common periods, we find coefficients not statistically different from one and very high R^2.[2]

[2] One should not expect perfect correlation between the two because the time periods for which firms are reporting prices may not perfectly overlap.

4. Attrition

The survey is designed to follow firms over time because we want to study the evolution of beliefs over time. In the first wave over **3,144** firms participated. In waves 2 ,3 and 4, the sample size was smaller: **712**, **1,601**, and **1,257**. This variation in sample size is due to our budget constraints, our inability to reach respondents, and managers' refusal to participate. The first reason was the main constraint for wave 2. For this wave, we randomly assigned ordering to firms within an industry/size cell and stopped when the budget for a cell was exhausted.

In wave 5, we effectively replenished the sample. In wave 6, these firms were surveyed again. The sample sizes are **2,040** and **1,404** respectively. Only 150 firms in wave 5 participated in a previous wave. We find that responses of these continuing firms have moments similar to those of newly surveyed firms.

To verify that non-participation does not involve sample selection, we run the following linear probability model:

$$D_{ist} = b_1 F_{ist_0}\pi_{t_0+12} + b_2 \log\left(Age_{ist_o}\right) + b_3 \log\left(Employment_{ist_0}\right) + b_4 share^{L}_{ist_0} + b_5 share^{Trade}_{ist_0} + b_5 NCompetitors_{ist_0} + \lambda_s + error \quad (1.4.1)$$

where i,s,t index firms, sectors and waves, t_0 is the baseline wave, $F_{ist_0}\pi_{t_0+12}$ is the one-year-ahead forecast for inflation, Age is the age of a firm, $Employment$ is the number of employees in a firm, $share^{L}$ is the share of labor costs in total costs, $share^{Trade}$ is the share of foreign sales (export) in total sales, $NCompetitors$ is the self-reported number of competitors for a firm, λ_s is a sector fixed effect. D_{ist} is equal to one if firm i participated in wave t and zero otherwise. We consider to baseline waves: wave 1 and wave 5.

Appendix Table 1.4.1 shows that, by and large, there is little if any selection on these observable characteristics of firms. For example, column (1) of the table documents that none of the characteristics has statistical power to predict participation in wave 2 conditional on participating in wave 1. Also note that R^2 is small. Column (4) also shows that the characteristics cannot predict which firms consistently participate in the survey, that is, participate in waves 2, 3 and 4 after participating in wave 1. Likewise, we find that these characteristics have little power to predict participation in wave 7 conditional on participating in wave 6. We conclude that firms are missing from the survey approximately at random.

5. Descriptive statistics

Appendix Table 1.5.1 presents basic firm characteristics across sectors. There is considerable variation. For example, firms in manufacturing tend to be 50 percent larger than firms in trade. The frequency of price reviews varies from 6.4 months for manufacturing to 10.8 months in construction. There is, however, more similarity in the expected size of price changes: it is approximately 5-6 percent for all sectors. These results underscore the importance of sampling firms from as many sectors as possible.

Appendix Table 1.1.1: Number of firms by sector and size in NZ, 2012

	Number of workers			
	6-19	20-49	>=50	Total >6 workers
Manufacturing	3628	1114	667	5409
Rental Hiring & Real Estate	857	118	50	1025
Professional Technical Scientific Services & Administrative Support Services	4042	973	567	5582
Financial and Insurance Services	507	203	96	806
Construction	3308	635	212	4155
Wholesale Trade	2365	587	317	3269
Retail Trade	3730	593	523	4846
Accommodation	4584	1001	262	5847
Transport Postal Warehousing & Information Media	1356	433	299	2088
Totals	24377	5657	2993	33027

Source: Statistics New Zealand.

Appendix Table 1.1.2: Percentage of firms by sector and size in NZ, 2012

	Number of workers			
	6-19	20-49	>=50	Total >6 workers
Manufacturing	67.07	20.60	12.33	100
Rental Hiring & Real Estate	83.61	11.51	4.88	100
Professional Technical Scientific Services & Administrative Support Services	72.41	17.43	10.16	100
Financial and Insurance Services	62.90	25.19	11.91	100
Construction	79.61	15.28	5.10	100
Wholesale Trade	72.35	17.96	9.70	100
Retail Trade	76.97	12.24	10.79	100
Accommodation	78.40	17.12	4.48	100
Transport Postal Warehousing & Information Media	64.94	20.74	14.32	100

Source: Statistics New Zealand.

Appendix Table 1.1.3: Number of firms by sector/size in the sampling frame of survey wave 1, 2013.

	Number of workers			
	6-19	20-49	>=50	Total >6 workers
Manufacturing	3350	1030	620	5000
Rental Hiring & Real Estate	580	82	38	700
Professional Technical Scientific Services & Administrative Support Services	2754	662	384	3800
Financial and Insurance Services	332	135	60	527
Construction	818	157	52	1027
Wholesale Trade	585	145	78	808
Retail Trade	923	147	129	1199
Accommodation	1134	248	65	1447
Transport Postal Warehousing & Information Media	336	107	74	517
Totals	10812	2713	1500	15025

Source: Kompass New Zealand and Knowledge Management Services databases.

Appendix Table 1.1.4: Percentage of firms by sector/size in the sampling frame of survey wave 1, 2013

	Number of workers			
	6-19	20-49	>=50	Total >6 workers
Manufacturing	67.00	20.60	12.40	100
Rental Hiring & Real Estate	82.86	11.71	5.43	100
Professional Technical Scientific Services & Administrative Support Services	72.47	17.42	10.11	100
Financial and Insurance Services	63.00	25.62	11.39	100
Construction	79.65	15.29	5.06	100
Wholesale Trade	72.40	17.95	9.65	100
Retail Trade	76.98	12.26	10.76	100
Accommodation	78.37	17.14	4.49	100
Transport Postal Warehousing & Information Media	64.99	20.70	14.31	100

Source: Kompass New Zealand and Knowledge Management Services databases.

Appendix Table 1.1.5: Sample framework of survey wave 1, Number of Enterprises or Firms.

	Number of workers										
	6-19			20-49			>=50			Totals	
	Statistics NZ Records	Kompass-KMS Firms Approached	Our Sample (Responses Achieved)	Statistics NZ Records	Kompass-KMS Firms Approached	Our Sample (Responses Achieved)	Statistics NZ Records	Kompass-KMS Firms Approached	Our Sample (Responses Achieved)	Statistics NZ Records	Responses Achieved
Manufacturing	3628	3350	636	1114	1030	208	667	620	170	5409	1014
Rental Hiring & Real Estate	857	580	105	118	82	30	50	38	28	1025	163
Professional Technical Scientific Services & Administrative Support Services	4042	2754	270	973	662	145	567	384	100	5582	515
Financial and Insurance Services	507	332	295	203	135	100	96	60	37	806	432
Construction	3308	818	51	635	157	10	212	52	15	4155	76
Wholesale Trade	2365	585	151	587	145	50	317	78	20	3269	221
Retail Trade	3730	923	171	593	147	91	523	129	35	4846	297
Accommodation	4584	1134	200	1001	248	70	262	65	35	5847	305
Transport Postal Warehousing & Information Media	1356	336	80	433	107	30	299	74	20	2088	130
Totals	24377	10812	1959	5657	2713	734	2993	1500	460	33027	3153

Appendix Table 1.1.6: Response rate in survey wave 1.

	Number of workers			
	6-19	20-49	>=50	Total >6 workers
Manufacturing	19.0%	20.2%	27.4%	20.3%
Rental Hiring & Real Estate	18.1%	36.6%	73.7%	23.3%
Professional Technical Scientific Services & Administrative Support Services	9.8%	21.9%	26.0%	13.6%
Financial and Insurance Services	88.9%	74.1%	61.7%	82.0%
Construction	6.2%	6.4%	28.8%	7.4%
Wholesale Trade	25.8%	34.5%	25.6%	27.4%
Retail Trade	18.5%	61.9%	27.1%	24.8%
Accommodation	17.6%	28.2%	53.8%	21.1%
Transport Postal Warehousing & Information Media	23.8%	28.0%	27.0%	25.1%
Totals	18.1%	27.1%	30.7%	21.0%

Appendix Table 1.1.7: Percentage of firms by sector/size in the population and the sampling frame of survey wave 5.

	Statistics New Zealand (population)			Survey sampling frame (KMZ and KMS)		
	6-19 workers	20-49 workers	>=50 workers	6-19 workers	20-49 workers	>=50 workers
Manufacturing	67.1	20.6	12.3	68.1	20.6	11.3
Rental Hiring & Real Estate	83.6	11.5	4.9	88.5	9.7	1.9
Professional Technical Scientific Services & Administrative Support Services	72.4	17.4	10.2	75.6	15.7	8.6
Financial and Insurance Services	62.9	25.2	11.9	47.2	37.0	15.7
Construction	79.6	15.3	5.1	79.2	15.2	5.7
Wholesale Trade	72.3	18.0	9.7	73.9	16.2	9.9
Retail Trade	77.0	12.2	10.8	83.4	6.2	10.4
Accommodation	78.4	17.1	4.5	81.8	15.6	2.6
Transport Postal Warehousing & Information Media	64.9	20.7	14.3	61.7	25.3	13.0

Appendix Table 1.1.8: Survey wave 5, Number of Enterprises or Firms and Response rate.

	6-19 workers			20-49 workers			>50 workers			Total >6 workers		
	Kompass-KMS Firms Approached	Our Sample (Responses Achieved)	Response rate	Kompass-KMS Firms Approached	Our Sample (Responses Achieved)	Response rate	Kompass-KMS Firms Approached	Our Sample (Responses Achieved)	Response rate	Total Approached	Our Sample (Responses Achieved)	Response rate
Manufacturing	2714	153	5.6%	822	265	32.2%	450	186	41.3%	3986	604	15.2%
Rental Hiring & Real Estate	475	29	6.1%	52	15	28.8%	10	10	100.0%	537	54	10.1%
Professional Technical Scientific Services & Administrative Support Services	2484	95	3.8%	517	91	17.6%	284	37	13.0%	3285	223	6.8%
Financial and Insurance Services	120	109	90.8%	94	81	86.2%	40	37	92.5%	254	227	89.4%
Construction	767	23	3.0%	147	60	40.8%	55	43	78.2%	969	126	13.0%
Wholesale Trade	434	23	5.3%	95	30	31.6%	58	42	72.4%	587	95	16.2%
Retail Trade	752	94	12.5%	56	45	80.4%	94	20	21.3%	902	159	17.6%
Accommodation	934	33	3.5%	178	35	19.7%	30	15	50.0%	1142	83	7.3%
Transport Postal Warehousing & Information Media	256	19	7.4%	105	84	80.0%	54	42	77.8%	415	145	34.9%
Totals	8936	578	6.5%	2066	706	34.2%	1075	432	40.2%	12077	1716	14.2%

Appendix Table 1.1.9: Survival rates in wave 6.

	6-19 workers			20-49 workers			>50 workers			Total >6 workers		
	Firms Approached	Responses Achieved	Response rate	Firms Approached	Responses Achieved	Response rate	Firms Approached	Responses Achieved	Response rate	Firms Approached	Responses Achieved	Response rate
Manufacturing	153	122	80%	265	198	75%	186	139	75%	604	459	76%
Rental Hiring & Real Estate	29	18	62%	15	8	53%	10	6	60%	54	32	59%
Professional Technical Scientific Services & Administrative Support Services	95	54	57%	91	60	66%	37	24	65%	223	138	62%
Financial and Insurance Services	109	70	64%	81	48	59%	37	27	73%	227	145	64%
Construction	23	20	87%	60	45	75%	43	34	79%	126	99	79%
Wholesale Trade	23	15	65%	30	23	77%	42	32	76%	95	70	74%
Retail Trade	94	72	77%	45	39	87%	20	15	75%	159	126	79%
Accommodation	33	24	73%	35	30	86%	15	9	60%	83	63	76%
Transport Postal Warehousing & Information Media	19	16	84%	84	69	82%	42	37	88%	145	122	84%
Totals	578	411	71%	706	520	74%	432	323	75%	1716	1254	73%

Appendix Table 1.3.1: Verification of Quality and Consistency of Survey Responses

Industry FE	N	Y	N
Sub-Industry FE	N	N	Y
	(1)	(2)	(3)
Panel A: Number of price changes over the previous year			
Time between price reviews	-0.182***	-0.181***	-0.188***
	(0.006)	(0.006)	(0.006)
Observations	3,144	3,144	3,144
R^2	0.648	0.677	0.684
Panel B: Average freq. of price reviews in the follow-up survey			
Average frequency of price reviews	0.997***	0.998***	0.995***
	(0.004)	(0.004)	(0.005)
Observations	712	712	712
R^2	0.984	0.984	0.984
Panel C: Recall price (log) in the follow-up survey			
Log price	0.999***	1.000***	0.999***
	(0.003)	(0.002)	(0.003)
Observations	712	712	712
R^2	0.999	0.999	0.999
Panel D: Actual price change between the main and follow-up surveys			
Expected price change	1.048***	1.029***	1.022***
	(0.051)	(0.057)	(0.058)
Observations	374	374	374
R^2	0.767	0.770	0.773

Notes: Panel A: the dependent variable is the number of quarterly price changes over the previous year. The maximum number of price changes is four. The time between price reviews takes values 0.25 (weekly), 1 (monthly), 3 (quarterly), 6 (every size month), 12 (annually), 18 (less frequently than annually). Panel B: the dependent variables is the average frequency of price reviews reported in the follow-up survey. Panel C: the dependent variable is the price 3 month ago (for firms surveyed in December 2013 or January 2014) or 6 month ago (for firms surveyed in September 2013, October 2013, or November 2013) reported in the first follow-up survey. The regressor is the actual price reported in the main survey. Panel D: the dependent variable is the percent change of current prices reported in waves 1 and 2. The regressor is the expected percent change in the next price review reported in wave 1. The sample is constrained to firms that had an actual price change and that expected to have a price review in the next five months. Constant is included but not reported. Industry and sub-industry fixed effects are as defined in Table 1. Column (4) applies sampling weights. Robust standard errors (clustered at 3-digit ANZ SIC) are reported in parentheses. ***,**, * denotes statistical significance at 1%, 5%, and 10% levels respectively. See section 2 for details.

Appendix Table 1.4.1: Determinants of Attrition

Dependent variables: 1 = a firm stays in the survey 0 = a firm is not in the survey	Attrition from wave X to wave Y (X => Y)				
	1 => 2	1 => 3	1 => 4	1 => 2,3,4	6 => 7
	(1)	(2)	(3)	(4)	(5)
Expected inflation	-0.001	0.003	0.002	-0.001	-0.004
	(0.002)	(0.002)	(0.002)	(0.001)	(0.006)
Ln(age)	0.016	0.021	0.025*	0.014	-0.010
	(0.011)	(0.013)	(0.013)	(0.010)	(0.013)
Ln(employment)	-0.013	-0.006	-0.007	-0.002	0.027*
	(0.014)	(0.016)	(0.016)	(0.012)	(0.016)
Labor cost share	-0.000	0.001	0.000	0.000	-0.005***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Trade share	0.001	0.002*	0.002***	0.001	-0.001*
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
# of competitors	-0.001	0.000	0.000	-0.001	0.002
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)
Observations	3,153	3,153	3,153	3,153	2,040
R-squared	0.017	0.014	0.008	0.012	0.060

Notes: The table reports OLS estimates of specification (1.4.1). Robust standard errors are in parentheses. ***,**, * denotes statistical significance at 1%, 5%, and 10% levels respectively. See section 4 of Appendix I for further details.

Appendix Table 1.5.1: Summary Statistics from Firm Survey

	Number of firms	Firm Characteristics							Next Price Change	
		Age	Employment	Labor's Share	Trade Share	Current Margin	Average Margin	Duration between Price Reviews	Months until next change	Expected Size
All firms	3,150	10.9	22.1	47.0	2.3	23.0	29.2	7.9	5.7	6.1
Manufacturing	997	17.7	32.7	39.2	8.7	21.3	28.1	6.3	5.8	5.9
Chemicals and metals	213	14.8	26.3	38.0	9.8	22.2	28.7	6.1	5.3	6.1
Equipment and machinery	164	17.6	29.8	37.9	6.5	22.6	29.2	5.9	5.4	5.9
Food and beverage	261	23.1	47.6	40.1	9.3	21.4	27.2	7.3	7.0	5.5
Paper/wood, printing and furniture	139	15.4	26.2	39.7	7.2	20.0	28.4	5.8	5.3	5.8
Textile and clothing	220	14.0	23.4	40.0	11.0	18.6	26.4	5.7	4.9	6.5
Trade	837	8.0	18.8	44.2	2.1	19.7	26.2	7.4	4.4	6.3
Car, supermarket and food retailing	116	11.2	25.9	40.5	1.8	18.2	25.9	7.0	3.2	5.6
Hotel and food services	305	7.1	16.4	41.0	3.1	16.1	26.5	4.5	2.5	5.5
Other store retailing	181	7.0	17.6	49.6	0.0	23.8	27.5	11.2	7.0	7.4
Wholesale trade	235	8.3	18.2	42.0	4.2	18.5	24.2	5.1	3.2	5.9
Professional and financial services	1,146	14.3	24.6	57.8	0.5	35.9	40.4	7.7	6.3	5.3
Accounting services	186	11.3	19.6	58.9	0.2	36.4	40.7	6.0	6.2	4.5
Finance	151	17.8	25.7	57.0	0.0	39.1	43.3	7.9	5.9	4.8
Insurance	156	36.8	48.6	56.1	1.3	39.7	42.8	10.4	8.0	5.4
Aux. finance and insurance	125	10.5	19.7	58.3	0.4	39.2	42.0	6.7	4.8	4.4
Legal services	139	11.9	19.4	59.0	0.6	37.4	41.3	6.7	5.8	4.5
Rental, hiring and real estate	163	9.4	14.1	59.9	0.2	32.4	36.9	6.7	4.6	5.8
All other professional services	226	14.9	28.0	57.1	0.7	35.1	40.1	8.3	7.0	5.6
Construction and transportation	170	9.8	19.9	48.3	0.0	17.6	24.1	11.0	8.8	7.0

Notes: The first column of the table presents the number of firms in each industry and sub-industry category in the main survey (wave #1). Other columns are mean values across all firms in each industry or sub-industry of specific variables listed. Sectors in italics are defined as "industries" while sectors not in italics are defined as "sub-industries", with the exception of "Construction and Transportation" which is counted as both. See section 2 for details.

APPENDIX 2

Classification of firms into industries and sub-industries

	SIC2 Codes
Manufacturing	
Chemicals and metals	1700-2299
Equipment and machinery	2300-2499
Food and beverage	1110-1219
Paper/wood, printing and furniture	1400-1699, 2500-2599
Textile and clothing	1300-1399
Trade	
Car, supermarket and food retailing	3900-4199
Hotel and food services	4400-4599
Other store retailing	4200-4399
Wholesale trade	3300-3899
Professional and financial services	
Accounting services	6932
Finance	6200-6299
Insurance	6300-6399
Aux. finance and insurance	6400-6499
Legal services	6931
Rental, hiring and real estate	6600-6799
All other professional services	5400-6099, 6900-7399 (excl. 6931, 6932)
Construction and transportation	3000-3299, 4600-5399

Notes: The table reports allocation of SIC codes to industries (in italics) and sub-industries (not in italics + Construction and transportation).

APPENDIX 3

Design of inflation expectation questions

1. Sensitivity of inflation expectations to wording of questions

Consistent with the Michigan Survey of Consumers, we asked firms about the expected change in general level of *prices*. The economists, however, often operate with inflation rates. While there is a one-to-one mapping between changes in prices and inflation rates, one may be concerned that the wording of the question may be important here since people may have cognitive biases or difficulties with respect to this mapping. In addition, managers may have different notions of what prices are included in the general level of prices.

To assess the quantitative significance of possible biases arising from the wording of the question, we take the following questions:

During the *last twelve* months, by how much do you think prices changed overall in the economy? Please provide an answer in percentage terms.

Answer:	**……**	**%**

During the *next twelve* months, by how much do you think prices will change overall in the economy? Please provide an answer in percentage terms.

Answer:	**……**	**%**

Please assign probabilities (from 0-100) **to the following ranges of overall price changes in the economy over the next 12 months for New Zealand:** (Note that the probabilities in the column should sum to 100)

Percentage Price Changes in 12 Months	**Probabilities**	
More than 25%:	**……**	**%**
From 15 to 25%:	**……**	**%**
From 10 to 15%:	**……**	**%**
From 8 to 10%:	**……**	**%**
From 6 to 8%:	**……**	**%**
From 4 to 6%:	**……**	**%**
From 2 to 4%:	**……**	**%**
From 0 to 2%:	**……**	**%**
From 0 to -2%:	**……**	**%**
From -2 to -4%:	**……**	**%**
From -4 to -6%:	**……**	**%**
From -6 to -8%:	**……**	**%**
From -8 to -10%:	**……**	**%**
From -10 to -15%:	**……**	**%**
From -15 to -25%:	**……**	**%**
Less than -25%:	**……**	**%**
Total (the column should sum to 100%):	**100**	**%**

and consider three alternative wordings:

A. **"by how much do you think prices will/have change(d) overall in the economy"**
B. **"what will be/has been the overall inflation rate over the next/last 12 months"**
C. **"what will be/has been the inflation rate (specifically the *Consumer Price Index*) over the next/last 12 months"**

Firms are randomly chosen to answer a specific version of the questions.

Appendix Table 3.1 shows that the responses across questions are very similar. Thus, firms do not appear to systematic biases or exhibit difficulties with interpreting the questions.

Appendix Table 3.1. Responses to baseline and alternative formulations of inflation expectation questions.

Group	N	Inflation forecast, one-year ahead			Inflation forecast, 5-10-year ahead			Inflation backcast, previous 12 months	
		Mean	St.dev.	Uncertainty	Mean	St.dev.	Uncertainty	Mean	St.dev.
A	679	3.72	2.55	1.02	3.29	2.49	1.04	3.42	2.22
B	681	3.73	2.54	1.04	3.31	2.50	1.11	3.40	2.27
C	680	3.71	2.53	1.04	3.31	2.46	1.04	3.43	2.26
Total	2040	3.72	2.54	1.04	3.30	2.48	1.06	3.42	2.25

2. Sensitivity of inflation expectations to the design of questions

In the baseline wording of probability questions, we present managers with a broad spectrum of possible outcomes. In contrast, other surveys present fewer and narrower options. Furthermore, sometimes the inflation forecast is proxied with forecast for the change in a firm's unit cost. To assess the quantitative importance of these differences, we randomized a set of questions presented to firms. Specifically, the first group of firms is presented with questions mimicking questions in the Business Inflation Expectations survey run the Federal Reserve Bank of Atlanta:

Projecting ahead, to the best of your ability, please assign a percent likelihood to the following changes to unit costs over the next twelve months (values should sum to 100%).

- Unit costs down (less than -1%) ……. %
- Unit costs about unchanged (-1% to 1%) ……. %
- Unit costs up somewhat (1% to 3%) ……. %
- Unit costs up significantly (3% to 5%) ……. %
- Unit costs up very significantly (more than 5%) ……. %

Please indicate what probabilities you would attach to the various possible percentage changes to the CORE (excluding food and energy) CONSUMER PRICE INDEX over the next twelve months (values should sum to 100%).

- 4 percent or more ….. %
- 3.5 to 3.9 percent ….. %
- 3.0 to 3.4 percent ….. %
- 2.5 to 2.9 percent ….. %
- 2.0 to 2.4 percent ….. %

- 1.5 to 1.9 percent ….. %
- 1.0 to 1.4 percent ….. %
- 0.5 to 0.9 percent ….. %
- 0.0 to 0.4 percent ….. %
- Will decline ….. %

Another group of firms is presented with the following questions which are in the baseline format of our survey:

Projecting ahead, to the best of your ability, please assign a percent likelihood to the following changes to unit costs over the next twelve months (values should sum to 100%).

More than 25%:	**……**	**%**
From 15 to 25%:	**……**	**%**
From 10 to 15%:	**……**	**%**
From 8 to 10%:	**……**	**%**
From 6 to 8%:	**……**	**%**
From 4 to 6%:	**……**	**%**
From 2 to 4%:	**……**	**%**
From 0 to 2%:	**……**	**%**
From -2 to 0%:	**……**	**%**
From -4 to -2%:	**……..**	**%**
From -6 to -4%:	**……..**	**%**
From -6 to -8%:	**……**	**%**
From -8 to -10%:	**……**	**%**
From -10 to -15%:	**……**	**%**
From -15 to -25%:	**……**	**%**
Less than -25%:	**……**	**%**
Total (the column should sum to 100%):	**100**	**%**

Please indicate what probabilities you would attach to the various possible percentage changes to the CORE (excluding food and energy) CONSUMER PRICE INDEX over the next twelve months (values should sum to 100%).

More than 25%:	**……**	**%**
From 15 to 25%:	**……**	**%**
From 10 to 15%:	**……**	**%**
From 8 to 10%:	**……**	**%**
From 6 to 8%:	**……**	**%**
From 4 to 6%:	**……**	**%**
From 2 to 4%:	**……**	**%**
From 0 to 2%:	**……**	**%**
From -2 to 0%:	**……**	**%**
From -4 to -2%:	**……..**	**%**
From -6 to -4%:	**……..**	**%**
From -6 to -8%:	**……**	**%**
From -8 to -10%:	**……**	**%**
From -10 to -15%:	**……**	**%**
From -15 to -25%:	**……**	**%**
Less than -25%:	**……**	**%**
Total (the column should sum to 100%):	**100**	**%**

For each question, we compute the implied mean and standard deviation of the reported densities. Appendix Table 3.2 presents summary statistics. We find that using a larger number of bins covering a

broader set of possibilities for the core CPI inflation rate yields results similar to those of the percent change in general level of prices (our baseline question). Using the same question in the BIE format produces a mean forecast similar to the mean in the baseline format of the question. However, the cross-sectional dispersion of implied means across firms is considerably smaller than in the baseline (1.30 vs 2.37). Furthermore, the implied uncertainty (measured as the standard deviation of the reported probability distribution) is nearly four times smaller in the BIE question than in the baseline question (0.26 vs. 0.94). This pattern suggests that the BIE format can overstate the degree of anchoring of inflation expectations in the sense of Kumar et al. (BPEA).

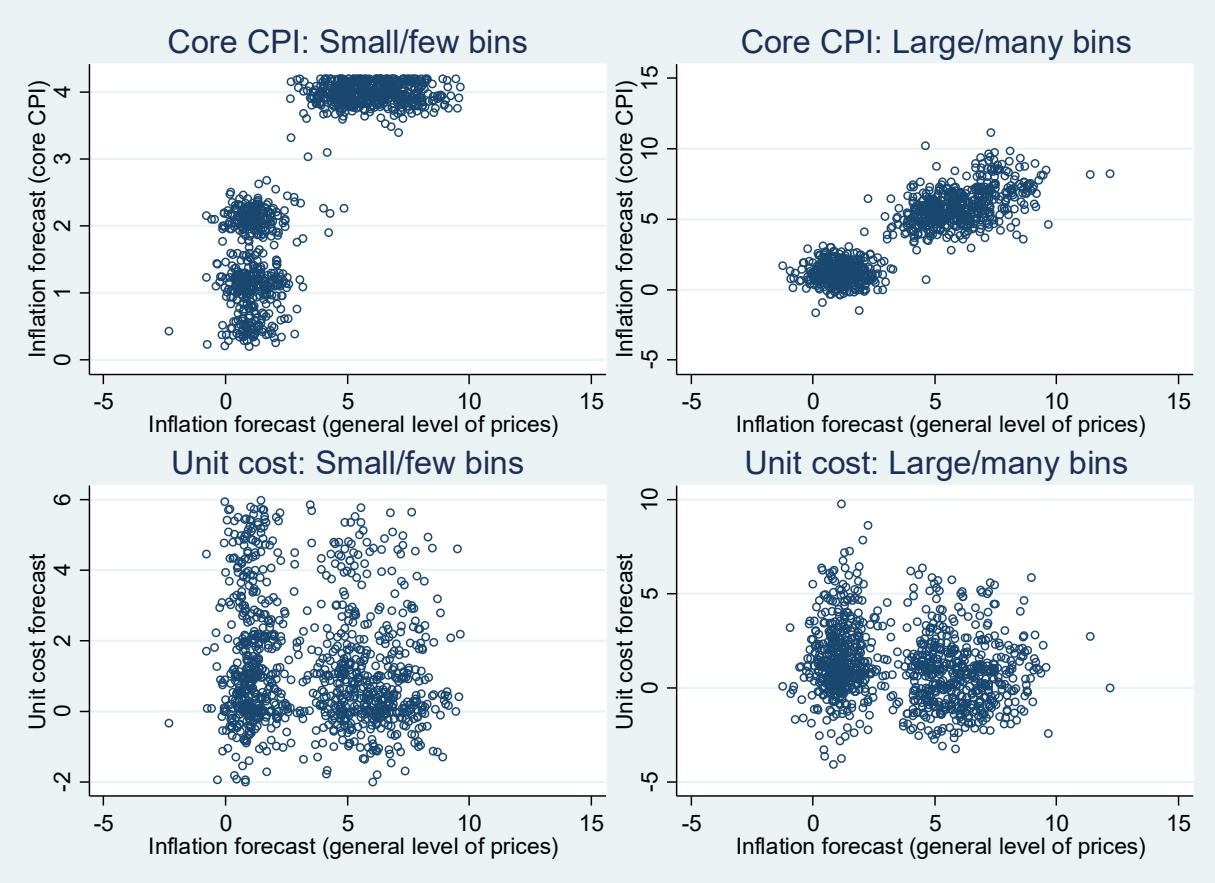
Forecasts of unit cost also display some sensitivity to the size/spectrum of bins. Although point forecasts are similar across the two question formats, the cross-sectional dispersion and uncertainty is smaller in the BIE format than in the baseline format. More importantly, the implied mean forecasts for changes in unit costs are essentially uncorrelated with implied mean forecasts for inflation. The BIE uses this question to measure inflation expectations. Our results suggest that using expectations for a firm's change in unit costs may be a poor proxy for a firm's inflation expectations.

Appendix Figure 3.1. shows the scatter plots to demonstrate how different formats of the questions are related the baseline question about change in the general level of prices. The bottom-row figures show that expected changes in a firm's own unit costs are effectively uncorrelated with expected inflation. The expected core CPI with a large number of bins covering a broad spectrum are highly correlated with the expected inflation in the baseline format of the expected inflation question. In contrast, using the BIE format of the question for core CPI shows that a considerable mass of responses is bunched at the top bracket of the BIE question. In other words, the format of the BIE question is too restrictive. Indeed, when asked the baseline format of the question, one average managers assign 28% probability to have inflation greater than 4% which is effectively outside the range given to firms in the BIE format.

Appendix Table 3.2. Responses to baseline and alternative formulations of inflation expectation questions.

One-year ahead forecast	N	mean	median	st.dev.	uncertainty	Correlation with the change in the general level of prices
Change in the general level of prices	2,032	2.59	1.40	2.48	0.92	1.00
Core CPI						
Large/many bins	1,011	2.58	1.40	2.37	0.94	0.90
Small/few bins (BIE)	1,021	2.26	2.10	1.30	0.26	0.85
Unit cost						
Large/many bins	1,011	1.28	1	1.89	1.04	0.13
Small/few bins (BIE)	1,021	1.28	1	1.74	0.98	-0.003

Appendix Figure 3.1. Responses to baseline and alternative formulations of inflation expectation questions.



3. Point forecasts vs. means from probability distributions

In addition to asking firms about their point forecasts of inflation, we asked firms to provide probability distribution for their forecasts in wave #5. The question is formulated as follows:

Please assign probabilities (from 0-100) **to the following ranges of overall price changes PER YEAR in the economy over the next 5-10 years for New Zealand:** (Note that the probabilities in the column should sum to 100)

Percentage Price Changes PER YEAR over the next 5-10 Years.	**Probabilities**
More than 25%:	**…… %**
From 15 to 25%:	**…… %**
From 10 to 15%:	**…… %**
From 8 to 10%:	**…… %**
From 6 to 8%:	**…… %**
From 4 to 6%:	**…… %**
From 2 to 4%:	**…… %**
From 0 to 2%:	**…… %**
From -2 to 0%:	**…… %**

From -4 to -2%:	**……..**	**%**
From -6 to -4%:	**……..**	**%**
From -6 to -8%:	**……**	**%**
From -8 to -10%:	**……**	**%**
From -10 to -15%:	**……**	**%**
From -15 to -25%:	**……**	**%**
Less than -25%:	**……**	**%**
Total (the column should sum to 100%):	**100**	**%**

One may be concerned that the implied mean from the probability distribution may be different from the point forecast reported by firms because firms may have cognitive biases and difficulties in connecting point forecasts and distributions for their forecasts. We calculate the mean forecast implied by the probability distribution as follows:

$$\begin{aligned}\tilde{F}_t^i\pi_{t,t+12} = {} & (-25)\times(\textbf{Less than } -\textbf{25}\%) + (-20)\times(\textbf{From } -\textbf{15 to } -\textbf{25}\%) \\ & + (-12.5)\times(\textbf{From } -\textbf{10 to } -\textbf{15}\%) + (-9)\times(\textbf{From } -\textbf{8 to } -\textbf{10}\%) \\ & + (-7)\times(\textbf{From } -\textbf{6 to } -\textbf{8}\%) + (-5)\times(\textbf{From } -\textbf{6 to } -\textbf{4}\%) \\ & + (-3)\times(\textbf{From } -\textbf{4 to } -\textbf{2}\%) + (-1)\times(\textbf{From } -\textbf{2 to 0}\%) \\ & + (+1)\times(\textbf{From } -\textbf{2 to 0}\%) + (+3)\times(\textbf{From } -\textbf{4 to } -\textbf{2}\%) \\ & + (+5)\times(\textbf{From } -\textbf{6 to } -\textbf{4}\%) + (+7)\times(\textbf{From } -\textbf{6 to } -\textbf{8}\%) \\ & + (+9)\times(\textbf{From } -\textbf{8 to } -\textbf{10}\%) + (+12.5)\times(\textbf{From } -\textbf{10 to } -\textbf{15}\%) \\ & + (+20)\times(\textbf{From } -\textbf{15 to } -\textbf{25}\%) + (+25)\times(\textbf{Less than } -\textbf{25}\%)\end{aligned}$$

Appendix Figure 3.2 plots point forecast for inflation $F_t^i\pi_{t,t+12}$ against the mean value implied from the probability distribution $\tilde{F}_t^i\pi_{t,t+12}$. Appendix Table 3.3 shows that the basic moments of inflation forecasts obtained from point predictions and mean forecasts implied by the reported probability distributions are similar. We present results of regressing $\tilde{F}_t^i\pi_{t,t+12}$ on $F_t^i\pi_{t,t+12}$ using OLS, Huber robust and quantile (median) regressions (Appendix Table 3.4). Huber and Quantile regressions minimize the effect of influential observations and outliers. We find that $\tilde{F}_t^i\pi_{t,t+12}$ and $F_t^i\pi_{t,t+12}$ are tightly related and point prediction provides a good proxy for the mean forecast implied by the reported probability distributions.

Appendix Table 3.3. Moments of inflation forecasts: point estimate vs. mean implied by the probability distribution.

	Mean	Median	St. Dev.
	(1)	(2)	(3)
Mean forecast implied by the distribution, $\tilde{F}_t^i\pi_{t,t+12}$	2.59	1.40	2.48
Point forecast $F_t^i\pi_{t,t+12}$	2.75	2.00	2.34

Notes: all statistics are calculated with employment-based sampling weights.

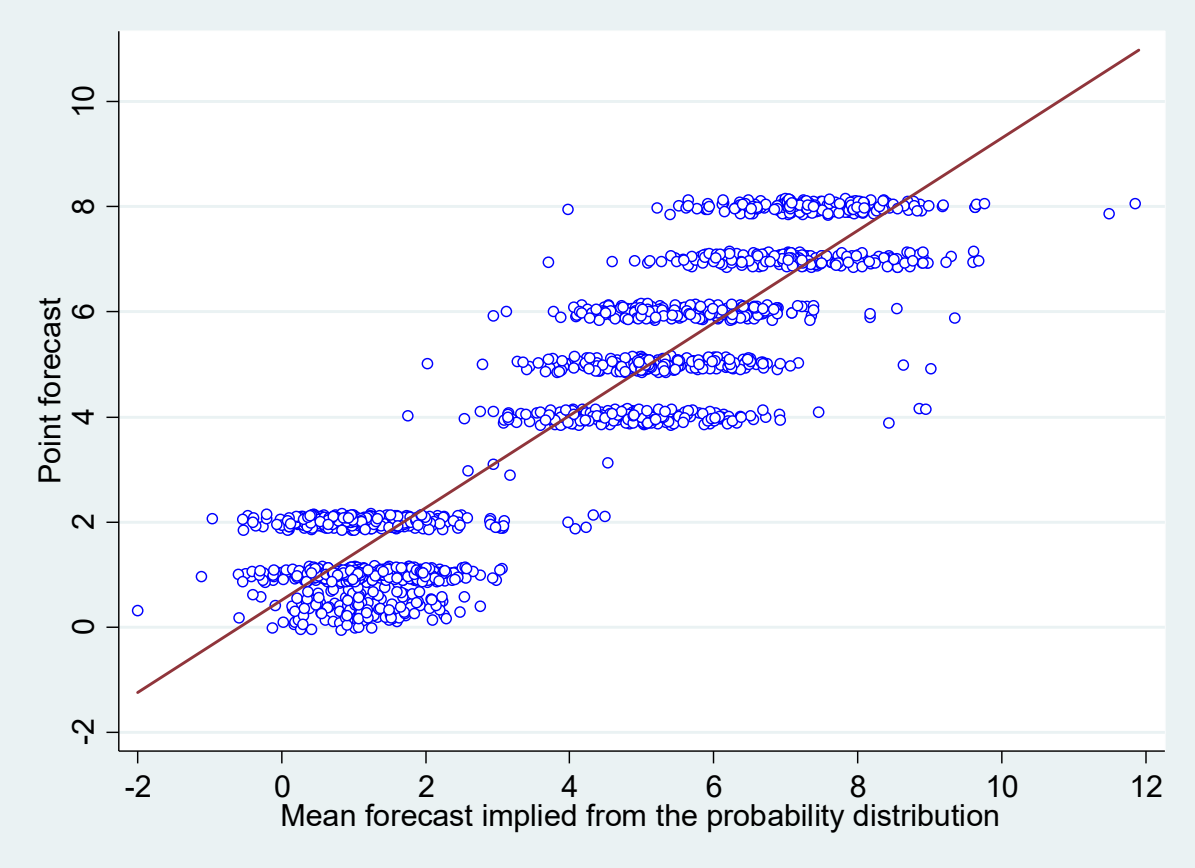
Appendix Table 3.4. Consistency of inflation forecasts: point estimate vs. mean implied by the probability distribution.

Dependent variable:	OLS	Huber	Quantile
Mean forecast implied by the distribution, $\tilde{F}_t^i\pi_{t,t+12}$	(1)	(2)	(3)

Point forecast $F_t^i \pi_{t,t+12}$	0.972***	0.967***	0.986***
	(0.009)	(0.009)	(0.008)
Observations	2,040	2,040	2,040
R-squared	0.855	0.855	

Notes: All regressions are estimated with employment-based sampling weights. Standard errors are reported in parentheses. ***, **, * shows statistical significance at 1%, 5%, and 10% levels respectively.

Appendix Figure 3.2. Point forecast for inflation vs. mean forecast implied by the probability distribution.



Notes: $\tilde{F}_t^i \pi_{t,t+12}$ is on the horizontal axis. $F_t^i \pi_{t,t+12}$ is on the vertical axis. The scatter plot is jittered to show the mass of observations for a given combination of $\tilde{F}_t^i \pi_{t,t+12}$ and $F_t^i \pi_{t,t+12}$.

4. Firms' expectations of aggregate inflation vs. expected changes in own unit costs

Some surveys of firms, such as the Business Inflation Expectations (BIE) survey of the Atlanta Federal Reserve, ask firms about their expectations of future changes in their unit costs rather than their

expectations of aggregate inflation. In the third wave of the survey, we asked firms the following two questions to assess the potential relationship between these two distinct concepts:

Expected changes in own unit costs:

> "During the next twelve months, by how much do you think your firm's unit costs will change? Please provide an answer in percentage terms."

Benchmark inflation question:

> During the next twelve months, by how much do you think overall prices in the economy will change? Please provide an answer in percentage terms.

In the fifth and sixth waves, we also asked the following questions:

> **Has your firm experienced changes in unit costs during the last 12 months and by how much do you think your firm's unit costs will change over the next six months?** Please provide a quantitative answer in percentage terms over each period.

Percentage change in unit costs:		
In the last twelve months:	**……**	**%**
In the next six months:	**……**	**% (relative to current level)**

> **During the *next twelve* months, by how much do you think prices will change overall in the economy?** Please provide an answer in percentage terms.

Answer:	**……**	**%**

We then compare firms' answers to the two questions in Appendix Figure 3.3 below. The correlation between firms' expectations over future aggregate inflation and their expectations over their future changes in unit costs is essentially zero.

We also explore if questions about changes in a firm's price are correlated with managers' perceptions about future inflation. Specifically, we use the 12-month-ahead forecast from the following question in waves 5 and 6:

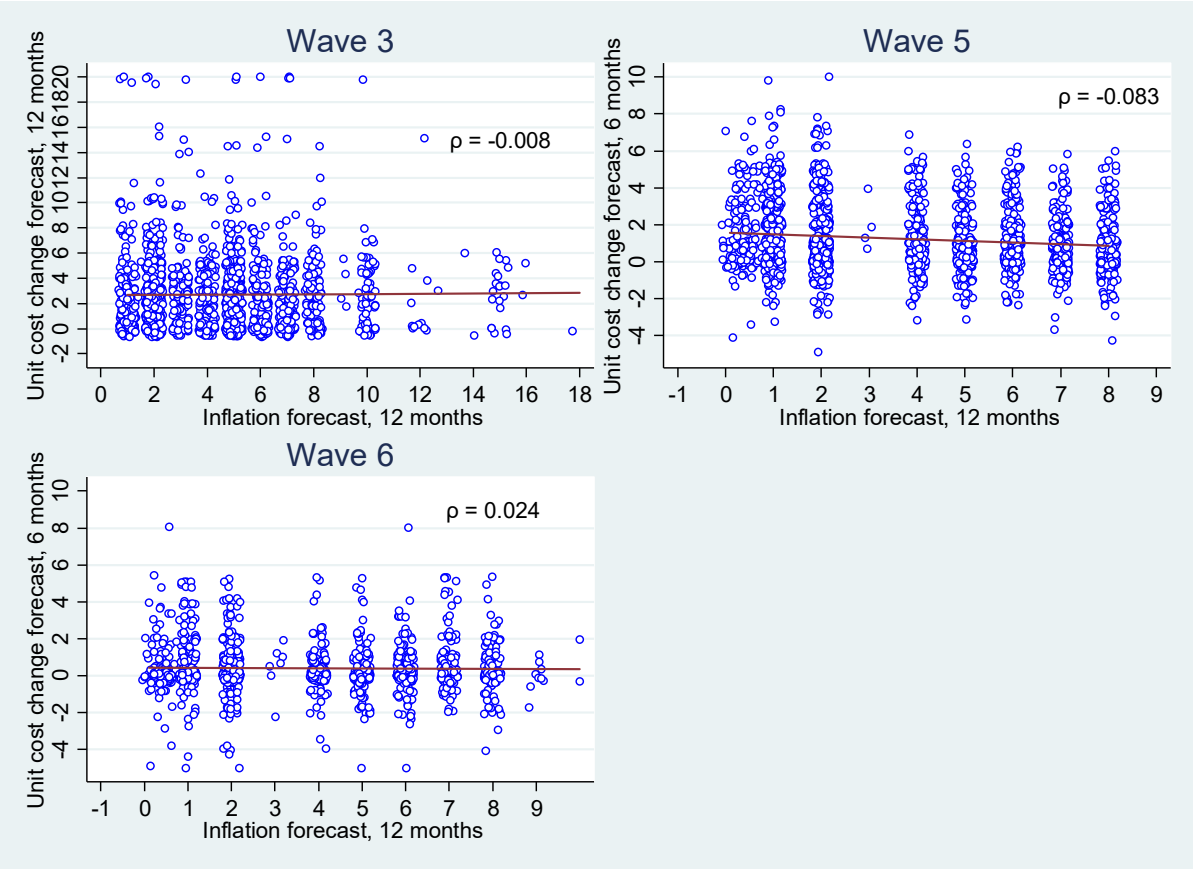
> **By how much has your firm changed the price of its main product over the last six months and by how much do you think it will change the price of its main product over the next six/twelve months?** Please provide a quantitative answer in percentage terms (e.g. "-X%" for X percent decline in price, "+X%" for X percent increase in price, etc.) over each period.

Percentage change in the price:		
In the last six months:	**……**	**%**
In the next six months:	**……**	**% (relative to current price)**
In the next twelve months:	**……**	**% (relative to current price)**

We find that, similar to expected changes in unit costs, expected changes in firms' own prices are effectively uncorrelated with managers' inflation forecasts (Appendix Figure 3.4).

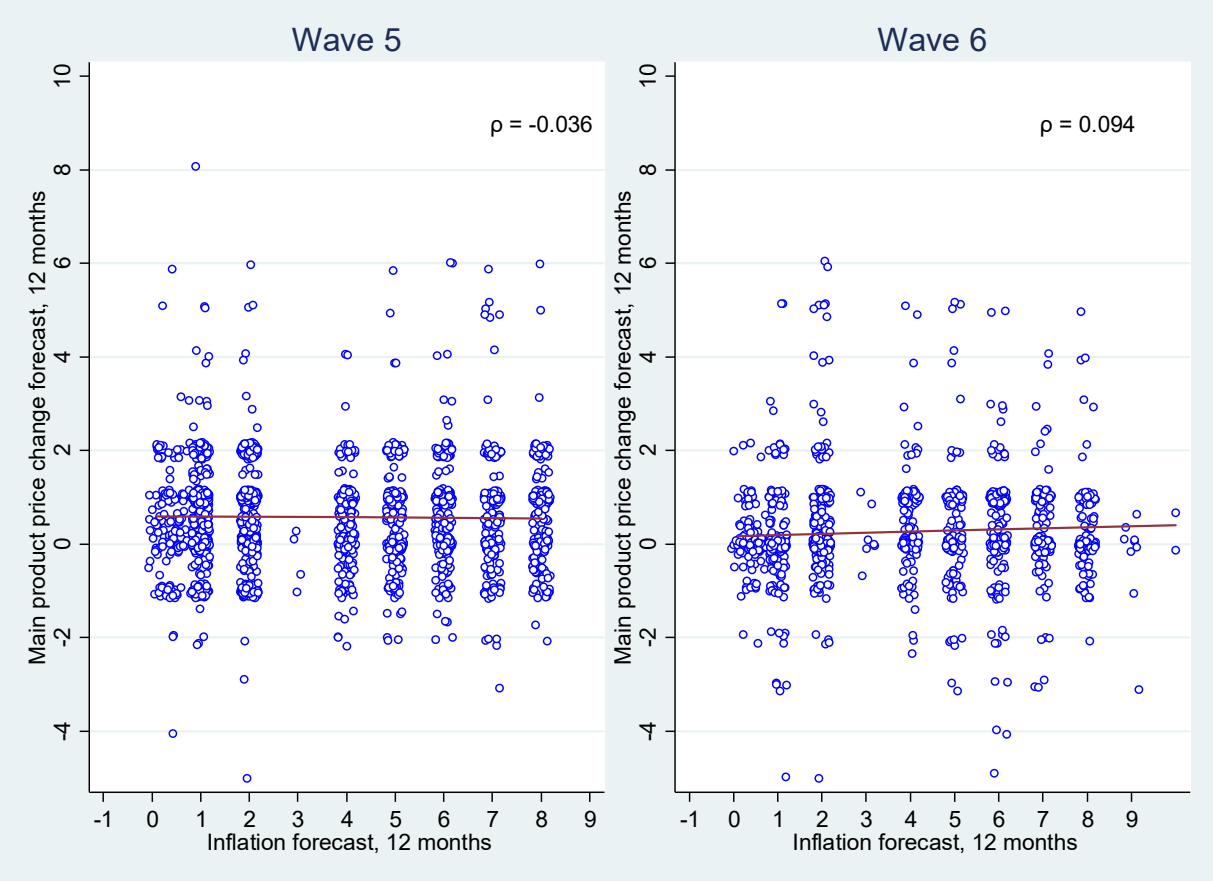
Appendix Table 3.5 shows that basic moments of responses about inflations, changes in own unit costs, and own price changes differ in key important respects. First, managers tend to expect inflation greater than expected changes in either own prices or unit costs. Second, managers exhibit greater disagreement (cross-sectional standard deviation) about inflation than changes in own prices or unit costs.

Appendix Figure 3.3. Expectations of future inflation vs. future changes in own unit costs.



Notes: The vertical axis is firm's expectations about aggregate inflation and horizontal axis is firm's expectations about future changes in their own unit costs. Scatter plots are jittered to show the mass of observations for each combination of unit cost and inflation forecasts.

Appendix Figure 3.4. Expectations of future inflation vs. future changes in own prices.



Appendix Table 3.5. Expectations of future inflation vs. future changes in own prices.

	N obs	Mean	Median	St.Dev.
Wave 3				
Expected inflation, 12-month ahead	1,601	4.48	4.00	2.97
Expected change in own unit cost, 12-month ahead	1,601	2.80	2.00	3.01
Wave 5				
Expected inflation, 12-month ahead	2,032	2.75	2.00	2.35
Expected change in own unit cost, 6-month ahead	2,032	1.27	1.00	1.88
Expected change in own price (main product), 6-month ahead	2,032	0.59	0.50	1.17
Wave 6				
Expected inflation, 12-month ahead	1,399	2.74	2.00	2.38
Expected change in own unit cost, 6-month ahead	1,399	0.46	0.00	1.47
Expected change in own price (main product), 6-month ahead	1,399	0.21	0.00	0.98

APPENDIX 4

Additional Tables and Figures

Appendix Table 4.1. Ranking of attention and associated backcast errors and forecast uncertainty.

	Regressor: $\mathbf{1}(Rank_i^X > Rank_i^Y)$			Regressor: $Rank_i^X - Rank_i^Y$		
X	Inflation	Inflation	UE	Inflation	Inflation	UE
Y	UE	GDP	GDP	UE	GDP	GDP
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: dependent variable is the relative size of willingness to pay for a prof. forecast $\log\left(\frac{Pay_i^X}{Pay_i^Y}\right)$						
Rank regressor	0.732***	0.844***	0.620***	0.285***	0.295***	0.275***
	(0.014)	(0.015)	(0.011)	(0.004)	(0.003)	(0.004)
Observations	1,087	1,107	1,099	1,095	1,105	1,092
R-squared	0.826	0.832	0.824	0.887	0.903	0.834
Panel B: dependent variable is the relative uncertainty in forecasts $\log\left(\frac{\sigma_i^X}{\sigma_i^Y}\right)$						
Rank regressor	-0.166***	-0.076**	-0.079***	-0.057***	-0.019*	-0.023**
	(0.030)	(0.029)	(0.025)	(0.011)	(0.010)	(0.011)
Observations	953	1,000	948	955	1,000	948
R-squared	0.246	0.139	0.178	0.233	0.138	0.174
Panel C: dependent variable is the relative size of backcast errors $\log\left(\frac{\lvert B_t X_{t-h} - X_{t-h}\rvert}{\lvert B_t Y_{t-h} - Y_{t-h}\rvert}\right)$						
Rank regressor	-1.983***	-1.496***	-0.896***	-0.707***	-0.484***	-0.469***
	(0.060)	(0.048)	(0.053)	(0.018)	(0.016)	(0.023)
Observations	1,096	1,080	1,073	1,097	1,073	1,084
R-squared	0.689	0.665	0.378	0.711	0.684	0.450

Notes: Panel A: $\log\left(\frac{Pay_i^X}{Pay_i^Y}\right)$ is the log of the ratio of willingness to pay ($/year) for a professional forecast for variable X to willingness to pay ($/year) for a professional forecast for variable Y. Panel B: $\log(\sigma_i^X/\sigma_i^Y)$ is the relative uncertainty in forecasts where σ_i^X measures uncertainty in forecasts from the probability distribution for variable X. Panel C: relative size of backcast errors $\log\left(\frac{|B_t X_{t-h} - X_{t-h}|}{|B_t Y_{t-h} - Y_{t-h}|}\right)$ where $B_t X_{t-h}$ is the backcast made at time t for variable X at time $t-h$. The horizon h is 12 month for inflation and GDP growth rate and 0 for the unemployment rate.

We use this question to rank variables in terms of relative attention

> **Which macroeconomic variables are most important to you in making your business decisions?**
> Please rank the variables below from 1 (most important) to 3 (least important)
> *a.* *Unemployment rate* …
> *b.* *GDP* …
> *c.* *Inflation* …
> *d.* *None of these is important to my decisions*

$Rank_i^X - Rank_i^Y$ is the difference in ranks of variables X and Y as perceived by firm i. Ranks can take values 1, 2, 3. Thus the maximum difference is 2 and the minimum is -2. A higher value of the difference indicates that variable X is more important than variable Y. $\mathbf{1}(Rank_i^X > Rank_i^Y)$ is the dummy variable equal to one if firm i thinks that variable X is more for firms business decisions than variable Y. All estimates are based on Huber robust regressions. Sample weights are applied in all specifications. Robust standard errors (clustered at the 3-digit ANZ SIC level) are reported in parentheses. ***,**, * denotes statistical significance at 1%, 5%, and 10% levels respectively. Controls for firm and manager characteristics from Table 3 are included but not reported.

Appendix Table 4.2. Determinants of tracking and importance of inflation for business decisions.

	Track inflation	Relative importance of inflation for business decisions
	(1)	(2)
Firm characteristics		
Log(Age)	-0.015	0.008
	(0.012)	(0.030)
Log(Employment)	-0.039***	0.030
	(0.014)	(0.028)
Labor's share of costs	-0.000	0.001
	(0.001)	(0.002)
Foreign trade share	-0.011***	0.011***
	(0.001)	(0.002)
Number of Competitors	0.001*	-0.004***
	(0.001)	(0.001)
Avg. margin	-0.002**	0.002
	(0.001)	(0.002)
Share of revenue from LT customers	-0.003***	0.006***
	(0.000)	(0.001)
Manager characteristics		
Age	0.001	-0.004*
	(0.001)	(0.002)
Education:		
Some college	-0.027**	-0.001
	(0.013)	(0.032)
College	-0.001	0.007
	(0.015)	(0.037)
Graduate (MA+)	0.024	-0.021
	(0.015)	(0.046)
Tenure	0.001	0.003
	(0.001)	(0.003)
Income	-0.000***	0.001**
	(0.000)	(0.000)
Industry FE	Yes	Yes
Observations	1,068	1,069
R-squared	0.821	0.765

Notes: The dependent variable in column (1) is the dummy variable equal to one if a firm tracks inflation and zero otherwise. The dependent variable in column (2) is the importance rank of inflation (relative to GDP and unemployment rate) for a firm's business decisions. The score runs from 1 (most importance) to 3 (least importance). All estimates are based on Huber robust regressions. Sample weights are applied in all specifications. Robust standard errors (clustered at the 3-digit ANZ SIC level) are reported in parentheses. ***,**, * denotes statistical significance at 1%, 5%, and 10% levels respectively.

Table 4.3. Ranking of attention and associated backcast errors and forecast uncertainty.

	Regressor: $\log\left(\frac{Pay_i^X}{Pay_i^Y}\right)$		
X	Inflation	Inflation	UE
Y	UE	GDP	GDP
	(1)	(2)	(3)
Panel A: dependent variable is the relative uncertainty in forecasts $\log\left(\frac{\sigma_i^X}{\sigma_i^Y}\right)$			
Rank regressor	-0.217***	-0.052	-0.072**
	(0.022)	(0.037)	(0.034)
Observations	1,067	1,108	1,052
R-squared	0.073	0.004	0.006
Panel B: dependent variable is the relative size of backcast errors $\log\left(\frac{\lvert B_t X_{t-h} - X_{t-h}\rvert}{\lvert B_t Y_{t-h} - Y_{t-h}\rvert}\right)$			
Rank regressor	-1.795***	-1.375***	-0.924***
	(0.067)	(0.047)	(0.073)
Observations	1,219	1,191	1,195
R-squared	0.525	0.533	0.185

Notes: Panel A: dependent variable is relative uncertainty in forecasts $\log(\sigma_i^X/\sigma_i^Y)$ where σ_i^X measures uncertainty in forecasts from the probability distribution for variable X. Panel B: relative size of backcast errors $\log\left(\frac{\lvert B_t X_{t-h} - X_{t-h}\rvert}{\lvert B_t Y_{t-h} - Y_{t-h}\rvert}\right)$ where $B_t X_{t-h}$ is the backcast made at time t for variable X at time $t-h$. The horizon h is 12 month for inflation and GDP growth rate and 0 for the unemployment rate. $\log\left(\frac{Pay_i^X}{Pay_i^Y}\right)$ is the log of the ratio of willingness to pay ($/year) for a professional forecast for variable X to willingness to pay ($/year) for a professional forecast for variable Y. All estimates are based on Huber robust regressions. Sample weights are applied in all specifications. Robust standard errors (clustered at the 3-digit ANZ SIC level) are reported in parentheses. ***,**, * denotes statistical significance at 1%, 5%, and 10% levels respectively.

Table 4.4. Information update, Wave 5.

Regressor	Dependent variable			
	posterior p_i		scaled revision of posterior $\frac{p_i-\mu_i}{s-\mu_i}$	
	12-month ahead	5-10-year ahead	12-month ahead	5-10-year ahead
	(1)	(2)	(3)	(4)
Prior, μ_i	0.549***	0.409***		
	(0.013)	(0.009)		
Uncertainty, σ_i			0.021	0.069***
			(0.020)	(0.016)
Observations	1,021	1,018	783	619
R-squared	0.638	0.622	0.001	0.018

Notes: The table replicates Table 5 in the paper using data from Wave 5. Columns (1) and (2) report results for specification (4.3) where the dependent variable is the posterior point prediction of the variable indicated in the first row of the table and the regressor is the prior, i.e. the point prediction implied by the reported probability distribution for the corresponding variable. The prior is the belief of a firm *before* the firm is presented with additional information. The posterior is the belief of a firm *after* the firm is presented with additional information. Fixed effects for source of information are included in column (1) but not reported. Columns (3) and (4) report result for specification (4.4) where the dependent variable is the revision in beliefs (posterior minus prior) scaled by the difference between the signal s and the prior for the variable indicated in the first row of the table. The posterior and prior are defined as for columns (1) and (2). The regressor is the standard deviation implied by the probability distribution for the corresponding variable. To minimize the effects of extreme observations, the sample in columns (3) and (4) is constrained to include only observations with $\left|\frac{p_i-\mu_i}{s-\mu_i}\right| \leq 2$. All estimates are based on the Huber robust regressions. Robust standard errors are reported in parentheses. ***,**, * denotes statistical significance at 1%, 5%, and 10% levels respectively. See section 5 for more details.

Appendix Table 4.5. Which Macroeconomic Variables Do Firms Track?

Variables followed	Fraction of firms	Fraction of firms that try to look at all the indicators simultaneously that they follow
	(1)	(2)
Inflation, Unemployment, GDP	0.238	0.909
Inflation, Unemployment	0.088	0.863
Inflation, GDP	0.120	0.960
Unemployment, GDP	0.290	0.968
Inflation	0.025	-
Unemployment	0.097	-
GDP	0.142	-

Notes: Column (1) reports the share of firms that track a combination of variables shown in the left column. Column (2) reports the share of firms tracking variables simultaneously conditional on firms tracking multiple variables.

Appendix Table 4.6. State-Dependence in Acquisition of Information.

		Suppose you hear on TV that the economy is doing poorly. Would it make you more likely to look for more information?					
		Much more likely	Somewhat more likely	No change	Somewhat less likely	Much less likely	Total
Suppose you hear on TV that the economy is doing well. Would it make you more likely to look for	Much more likely	4.20	4.29	0.45	0.48	0.34	9.77
	Somewhat more likely	9.14	6.12	1.21	1.58	1.37	19.42
	No change	3.07	2.16	2.12	1.16	0.17	8.67
	Somewhat less likely	24.82	15.69	7.34	3.41	2.09	53.35
	Much less likely	3.74	2.65	1.45	0.53	0.42	8.79
	Total	44.96	30.91	12.56	7.16	4.40	100.00

Notes: The table reports shares of firms by their desire to seek for more/less information in response to good/bad news about the economy.

Appendix Table 4.7. Unconditional correlations between inflation expectations and firm-specific outcomes.

Outcome variable	Correlation with inflation expectations in the previous wave	Regression of an outcome variable on inflation expectations in the previous wave	
		coef.	s.e.
	(1)	(2)	(3)
Panel A. Wave 7			
Sales growth	0.406	0.589***	(0.072)
Wage growth	0.299	0.085***	(0.016)
Unit cost growth	-0.072	-0.023	(0.032)
Investment	0.294	0.805***	(0.176)
Employment growth	0.264	0.667***	(0.153)
Price change	0.003	0.007	(0.024)
Panel B. Wave 2			
Sales growth	0.092	0.173**	0.075
Price change	-0.055	-0.090	0.066

Notes: column (1) reports correlation between a given firm-specific outcome variable in wave $t+1$ with one-year-ahead inflation expectation of corresponding firms in wave t. Columns (2) and (3) report the regression coefficients and standard errors where regressands are firm-specific outcomes in wave $t+1$ and the regressor is one-year-ahead inflation expectation in wave t.

Appendix Table 4.8. Effects of information about RBNZ target on firms' choice

Variable	No controls for firm characteristics		Controls for firm characteristics	
	High prior about RBNZ target (4 or more percent)	Low prior about RBNZ target (1 to 3 percent)	High prior about RBNZ target (4 or more percent)	Low prior about RBNZ target (1 to 3 percent)
	(1)	(2)	(3)	(4)
Realization of firm-level outcome				
Sales growth	-0.868	0.228	-0.702	0.188
	(0.571)	(0.182)	(0.590)	(0.184)
Wage growth	0.013	-0.006	-0.001	0.040
	(0.087)	(0.027)	(0.083)	(0.032)
Unit cost growth	0.139	0.284*	0.150	0.344**
	(0.103)	(0.159)	(0.105)	(0.171)
Investment	-1.905	-0.612*	-1.754	-0.562*
	(1.427)	(0.360)	(1.372)	(0.328)
Employment growth	-2.063*	-0.618	-1.968*	-0.625
	(1.180)	(0.407)	(1.111)	(0.462)
Price change	-0.151	0.077	-0.125	0.077
	(0.127)	(0.181)	(0.138)	(0.177)
Expectations immediately after treatment				
One-year ahead inflation	-1.020***	0.340***	-1.030***	0.370***
	(0.208)	(0.104)	(0.197)	(0.108)
Five-year ahead inflation	-0.756***	0.019	-0.775***	0.007
	(0.196)	(0.079)	(0.191)	(0.079)
One-year ahead unemployment	0.118	-0.121	0.121	-0.134
	(0.102)	(0.081)	(0.107)	(0.083)
One-year ahead GDP growth rate	0.091	0.313***	0.094	0.297**
	(0.069)	(0.115)	(0.063)	(0.127)
Expectations 6 months after treatment				
One-year ahead inflation	0.425***	-0.111	0.399***	-0.125
	(0.143)	(0.136)	(0.146)	(0.125)
Five-year ahead inflation	-0.139	-0.066	-0.095	-0.071
	(0.117)	(0.106)	(0.116)	(0.104)
One-year ahead unemployment	-0.111*	-0.040	-0.122*	-0.034
	(0.066)	(0.124)	(0.067)	(0.125)
One-year ahead GDP growth rate	0.020	0.091	0.004	0.071
	(0.068)	(0.107)	(0.059)	(0.098)
RBNZ inflation target	0.211	-0.113	0.178	-0.063
	(0.168)	(0.080)	(0.171)	(0.072)

Notes: The table shows estimates of the treatment effect on providing information about the inflation target of the Reserve Bank of New Zealand on firms with priors close to the true target (columns 2 and 4) and on firms with priors far from the true target (column 1 and 3). The dependent variable is the level of outcome variables in survey wave 6 (survey wave 5 for outcomes measured immediately after treatment) rather than forecast errors as in Table 6 of the paper. Robust standard errors are reported in parentheses. ***,**, * denotes statistical significance at 1%, 5%, and 10% levels respectively. See section 5 for more details.

APPENDIX 5

Selected Survey Questions

Wave #1

What is the main product of this firm?
"Main product": The product (good or service) or product group from which this firm gets its largest share of revenue.

How many workers are employed in this firm? How many are used for the main product or product line?

	Employment for firm:	Employment for main product:
Full-time:	.....	.....
Contracted:	.....	.....
Part-time:	.....	.....
Casual:	.....	.....

How many years old is the firm?

Answer:	**……**	**year(s) old**

Report the dollar value of the total amount produced by this firm over the last 3 months and that for the main product or product line. Please also report the dollar value of the amount the firm *could* have produced over the last 3 months if it had been operating at full capacity (i.e. given the equipment and machinery already in place and ready to operate; with normal downtime; with the number of shifts, hours of operation and overtime pay that can be sustained under normal conditions and a realistic work schedule in the long run; labor, materials, utilities, etc. are fully available; the same product mix as the actual production).

	Total Production Value		**Production Value for Main Product**	
Actual Production:	**……**	**$**	**……**	**$**
Potential Production:	**……**	**$**	**……**	**$**

What percentage of the firm's revenues in the last 12 months came from sales in New Zealand (vs. other countries)**?**

Answer:	**……**	**% of sales originating in New Zealand**

How many direct competitors does this firm face in its main product line?

Answer:	**……**	**firms.**

Out of the total revenues of the firm, what fraction is used for compensation of all employees and what fraction is used for the costs of materials and intermediate inputs (raw materials, energy inputs, etc…)?

	Labor Costs	**Costs of Materials and other Inputs**
Share of total revenues:	**…… %**	**…… %**

What is the average selling price of this firm's main product (or product group)?

Domestic market current price =	(NZ$)	.....
Overseas market current price (if applicable) =	(currency.....).	.....
N/A (please tick)	☐	

How would you compare the price of this firm's main product relative to the prices of competing products (of similar quality, characteristics, warranty)? Please provide an answer in percentage terms (e.g. "-10%" if your product is 10% cheaper than that of most comparable competitors).

Answer:	**……**	**%**

What was the average selling price (in domestic market) of this firm's main product (or product group) in previous periods?

3 months ago = (NZ$)	
6 months ago = (NZ$)	
9 months ago = (NZ$)	
12 months ago = (NZ$)	
N/A (please tick) ☐	

Considering your main product line or main line of services in the domestic market, by what margin does your sales price exceed your operating costs (i.e., the cost material inputs plus wage costs but not overheads and depreciation)? Please report your current margin as well as historical or average margin for the firm.

	Current Margin	**Average Margin**
Answer:	**…… %**	**…… %**

Approximately how often does this firm regularly review (formally) the price of its product?

Please circle the appropriate number:
1 = daily
2 = weekly
3 = monthly
4 = quarterly
5 = half-annually
6 = annually
7 = less frequently than annually
8 = N/A

When do you expect this firm to next change its price of the main product and by how much? Please provide a numerical answer in months for the former (e.g. "0" for within the next month, 1 for one month from now, …) and a percentage answer for the latter (e.g. "+10%" for a 10% increase in price or "-10%" for a 10% decrease)

Answer: I expect my firm to change the price of our main product by …… % in …….. months

If this firm was free to change its price (i.e. suppose there was no cost to renegotiating contracts with clients, no costs of reprinting catalogues, etc…) **right now or in three months, by how much would it change its price in either case?** Please provide a percentage answer (e.g. "+10%" for a 10% increase in price). **By how much do you think profits would change as a share of revenues in either case?** Please provide a numerical answer in percent (e.g. "+10%" if profits are expected to rise by 10% of revenues).

	If price could change this month:	**If price could change in three months:**
Expected change in price:	**…… %**	**…… %**
Expected change in profits:	**…… % of revenues**	**…… % of revenues**

During the *last twelve* months, by how much do you think prices changed overall in the economy? Please provide an answer in percentage terms.

Answer: …… %

During the *next twelve* months, by how much do you think prices will change overall in the economy? Please provide an answer in percentage terms.

Answer: …… %

By how much higher or lower than normal do you think the *current* level of overall economic activity is? Please provide an answer in percentage terms (e.g. "-5%" for five percent lower than normal, "+10%" for ten percent higher than normal, etc…).

Answer: …… %

Wave #2

SECTION A. QUESTIONS ABOUT THE FIRM

What is the selling price of this firm's main product (or product group)?

Domestic market current price = (NZ$) .....
Overseas market current price (if applicable) = (currency.....) .....
N/A (please tick) ☐

What was the average selling price (in domestic market) of this firm's main product (or product group) in previous periods?

3 months ago = (NZ$) .....
6 months ago = (NZ$) .....
9 months ago = (NZ$) .....
12 months ago = (NZ$) .....
N/A (please tick) ☐

SECTION B. MACROECONOMIC EXPECTATIONS

During the *last twelve* months, by how much do you think prices changed overall in the economy? Please provide an answer in percentage terms.

Answer: …… %

During the *next twelve* months, by how much do you think prices will change overall in the economy? Please provide an answer in percentage terms.

Answer: …… %

By how much higher or lower than normal do you think the *current* level of overall economic activity is? Please provide an answer in percentage terms (e.g. "-5%" for five percent lower than normal, "+10%" for ten percent higher than normal, etc…).

Answer: …… %

What do you think the unemployment rate currently is in New Zealand and what do you think it will be in twelve months? Please provide a quantitative answer in percentage terms (e.g. "5.2%" for an unemployment rate of 5.2%) over each period.

Current unemployment rate	**Unemployment rate in 12 months**
…… %	**…… %**

What do you think is the interest rate on a 1-year government bond currently and what do you think it will be in twelve months? Please provide a quantitative answer in percentage terms (e.g. "5.2%" for an unemployment rate of 5.2%) over each period.

Current interest rate	**Interest rate in 12 months**
…… %	**…… %**

Please assign probabilities (from 0-100) **to the following ranges of growth rates of the overall economy (real GDP) over the next 12 months:** (Note that the probabilities in the column should sum to 100)

Possible growth rates for real GDP	**Probabilities**	
More than 5% per year:	**……**	**%**
From 4 to 5% per year:	**……**	**%**
From 3 to 4% per year:	**……**	**%**
From 2 to 3% per year:	**……**	**%**
From 1 to 2% per year:	**……**	**%**
From 0 to 1% per year:	**……**	**%**
The economy will contract (<0% per year):	**……**	**%**
Total (each column should sum to 100%):	**100**	**%**

Please assign probabilities (from 0-100) **to the following ranges of overall percentage price changes in the economy over the next 12 months:** (Note that the probabilities in the column should sum to 100)

Possible percentage changes in prices	**Probabilities**	
More than 5% per year:	**……**	**%**
From 4 to 5% per year:	**……**	**%**
From 3 to 4% per year:	**……**	**%**
From 2 to 3% per year:	**……**	**%**
From 1 to 2% per year:	**……**	**%**
From 0 to 1% per year:	**……**	**%**
Prices will fall (<0% per year):	**……**	**%**
Total (each column should sum to 100%):	**100**	**%**

Wave #3

What is your age? …….years

What is your gender? Please tick a box: ☐ male ☐ female

What is your highest educational qualification?

1. Less than high school 2. High school diploma 3. Some college or Associate's degree

4. College diploma 5. Graduate studies (Masters or PhD)

How many years of work experience do you have in this firm? …….years

How many years of work experience do you have in this industry? …….years

How many years have you worked outside of NZ? …….years

How much is your gross income per annum?

1. Less than $30,000 2. 30,000-49,999 3. 50,000-74,999 4. 75,000-99,999

5. 100,000-149,999 6. 150,000 or more

During the next twelve months, by how much do you think your firm's unit costs will change? Please provide an answer in percentage terms.

During the *next twelve* months, by how much do you think overall prices in the economy will change? Please provide an answer in percentage terms.

If you thought overall prices in the economy over the next 12 months were going to rise by more than what you are currently forecasting, would you:

a) Be more likely to increase your prices
b) No change
c) Be more likely to decrease your prices

Please explain your answer briefly: ……..

If you thought overall prices in the economy over the next 12 months were going to rise by more than what you are currently forecasting, would you:

a) Be more likely to increase the wages that you pay
b) No change
c) Be more likely to decrease the wages that pay

Please explain your answer briefly: ……..

If you thought overall prices in the economy over the next 12 months were going to rise by more than what you are currently forecasting, would you:

a) Be more likely to increase your employment
b) No change
c) Be more likely to decrease your employment

Please explain your answer briefly: ……..

If you thought overall prices in the economy over the next 12 months were going to rise by more than what you are currently forecasting, would you:

a) Be more likely to increase your investments (capital expenditures)
b) No change
c) Be more likely to decrease your investments (capital expenditures)

Please explain your answer briefly: ……..

Wave #4

During the *last twelve* months, by how much do you think prices have changed in your industry? Please provide a precise and quantitative answer in percentage terms.

ANSWER: …….. %

During the *next twelve* months, by how much do you think prices will change in your industry? Please provide a precise and quantitative answer in percentage terms.

ANSWER: …….. %

During the *last twelve* months, by how much do you think prices have changed overall in the economy? Please provide a precise and quantitative answer in percentage terms.

ANSWER: …….. %

What do you think the real GDP growth rate has been in New Zealand during the last 12 months? Please provide a precise quantitative answer in percentage terms.

ANSWER: …….. %

What do you think the unemployment rate currently is in New Zealand? Please provide a precise quantitative answer in percentage terms.

ANSWER: …….. %

Please assign probabilities (from 0-100) **to the following ranges of overall price changes in the economy over the next 12 months for New Zealand:** (Note that the probabilities in the column should sum to 100)

Percentage Price Changes in 12 Months	**Probabilities**	
More than 25%:	**……**	**%**
From 15 to 25%:	**……**	**%**
From 10 to 15%:	**……**	**%**
From 8 to 10%:	**……**	**%**
From 6 to 8%:	**……**	**%**
From 4 to 6%:	**……**	**%**
From 2 to 4%:	**……**	**%**
From 0 to 2%:	**……**	**%**
Less than 0%:	**……**	**%**
Total (the column should sum to 100%):	**100**	**%**

Please assign probabilities (from 0-100) **to the following ranges of growth rates of the overall economy (real GDP) over the next 12 months:** (Note that the probabilities in the column should sum to 100)

Possible growth rates for real GDP	**Probabilities**	
More than 5% per year:	**……**	**%**
From 4 to 5% per year:	**……**	**%**
From 3 to 4% per year:	**……**	**%**

From 2 to 3% per year:	**……**	**%**
From 1 to 2% per year:	**……**	**%**
From 0 to 1% per year:	**……**	**%**
The economy will contract (<0% per year):	**……**	**%**
Total (the column should sum to 100%):	**100**	**%**

Please assign probabilities (from 0-100) **to the following ranges of unemployment rates in 12 months for New Zealand:** (Note that the probabilities in the column should sum to 100)

Possible Unemployment Rates in 12 Months	**Probabilities**	
More than 8%:	**……**	**%**
From 7 to 8%:	**……**	**%**
From 6 to 7%:	**……**	**%**
From 5 to 6%:	**……**	**%**
From 4 to 5%:	**……**	**%**
Less than 4%:	**……**	**%**
Total (the column should sum to 100%):	**100**	**%**

Randomly select firms into five sets [do not select firms based on their previous answers about inflation, price/information stickiness, etc.]

Subset 1 of firms: [no additional information]. **Go to question 13.**

Subset 2 of firms: Professional forecasters are currently predicting that the overall prices in New Zealand will rise by 2.0% over the next twelve months. By how much do you think overall prices in the economy will change during the next twelve months? Please provide a precise quantitative answer in percentage terms.

ANSWER: …….. %

Go to question 15.

Subset 3 of firms: Professional forecasters are currently predicting that the overall prices in New Zealand will rise by 2.0% over the next twelve months. The Reserve Bank of New Zealand targets an overall rise in prices of approximately 2% each year. By how much do you think overall prices in the economy will change during the next twelve months? Please provide a precise quantitative answer in percentage terms.

ANSWER: …….. %

Go to question 15.

Subset 4 of firms: The Reserve Bank of New Zealand targets an overall rise in prices of approximately 2% each year. By how much do you think overall prices in the economy will change during the next twelve months? Please provide a precise quantitative answer in percentage terms.

ANSWER: …….. %

Go to question 15.

Subset 5 of firms: Overall prices in New Zealand have gone up by 1.0% over the last twelve months. By how much do you think overall prices in the economy will change during the next twelve months? Please provide a precise quantitative answer in percentage terms.

ANSWER: …….. %

Go to question 15.

Subset 6 of firms: Firms in the economy expect overall prices to increase by X.X% over the next twelve months. By how much do you think overall prices in the economy will change during the next twelve months? Please provide a precise quantitative answer in percentage terms.

ANSWER: …….. %

Go to question 15.

For firms in subsets 2-5, add no information. For firms in subset 1, randomly select firms into

a. **subset and provide additional information (subset 1.a). Ask the question below.**
b. **others no information (subset 1.b). If selected in this subset, go to question 14.**

The most recent data for real GDP in New Zealand indicate that the economy grew 3.9% over twelve months. By how much do you think real GDP will grow overall in the economy over the next twelve months? Please provide a precise quantitative answer in percentage terms.

ANSWER: …….. %

Go to question 15.

For firms in subsets 2-5 and subset 1a, provide no additional information. For other firms, randomly select firms into

c. **subset and provide additional information (subset 1.a.i). Ask the question below.**
d. **others no information (subset 1.b.ii). If selected in this subset, go to question 15.**

The most recent unemployment rate in New Zealand is 5.4%. What do you think the unemployment rate will be in New Zealand in twelve months? Please provide a precise quantitative answer in percentage terms.

ANSWER: …….. %

15. Which macroeconomic variables are most important to you in making your business decisions?
Please rank the variables below from 1 (most important) to 3 (least important)

e. *Unemployment rate* …
f. *GDP* …
g. *Inflation* …
h. *None of these is important to my decisions*

16. Which macroeconomic variables do you keep track of? Check each variable that you keep track of**.**

a. *Unemployment rate* …
b. *GDP* …
c. *Inflation* …
d. *None of these is important to my decisions* …

If they check three variables go to 14a.
If they check two variables go to 14b.

If they check one variable, go straight to question 15.

16a. How do you acquire information about macroeconomic variables (inflation, unemployment or GDP)?

a. I try to look at all these indictors at the same time
b. I try to look at unemployment and GDP together
c. I try to look at unemployment and inflation together
d. I try to look at inflation and GDP together
e. I look at each of these variables separately

16b. How do you acquire information about macroeconomic variables (inflation, unemployment or GDP)?

a. I try to look at both indictors at the same time
b. I look at them separately.

17. Suppose you hear on TV that the economy is doing well. Would it make you more likely to look for more information?

a. Much more likely
b. Somewhat more likely
c. No change
d. Somewhat less likely
e. Much less likely

18. Suppose you hear on TV that the economy is doing poorly. Would it make you more likely to look for more information?

a. Much more likely
b. Somewhat more likely
c. No change
d. Somewhat less likely
e. Much less likely

19. Suppose a typical firm in your industry cuts its price by 10%. By how much would YOUR sales be affected?

a. Increase by … percent
b. No change
c. Decrease by … percent

20. Suppose that there are two sources of information about the state of the economy. These sources are equally informative/useful, but they can give different signals about the state of the economy (that is, they can disagree). In addition, the first source can be seen by other firms in your industry while the second sources is available only to you. You can see only one source. Which source would you pick?

a. The source that can be seen by other firms
b. The source that can be seen only by you

21. Suppose your main competitor raises the price of its product by 10 percent. By how much would you revise your expectation of inflation over the next 12 months?

a. Increase by … percent
b. No change
c. Decrease by … percent

22. Suppose you want to adjust your prices but you are uncertain about the state of the economy. What would you do

a. Collect more information now and then make a decision

b. Wait another quarter until more information comes in (but do not look for it actively)
c. Wait until other firms make a price adjustment
d. Change your price right away

23. What share of your turnover (total vs. for main product) comes from long-term versus short-term customers?

	Share of total turnover	**Share of turnover for main product**
Long-term customers		
(relationship lasting more than one year)	….. %	….. %
Short-term customers		
(relationship lasting 1 year or less)	….. %	….. %
	[check if sum =100]	*[check if sum =100]*

24. *What do you think is the current exchange rate of the New Zealand Dollar relative to the U.S. Dollar?*
Answer: …. *(either US dollar / NZ dollar or vice-versa)*

25. What do you think the exchange rate of the New Zealand Dollar will be in twelve months relative to the U.S. Dollar?
Answer: …. *(either US dollar / NZ dollar or vice-versa)*

Wave #5

SECTION A. BASIC CHARACTERISTICS OF THIS FIRM

1. **What is the main product of the firm?**
   "Main product": The product (good or service) or product group from which this firm gets its largest share of revenue.

2. **What is the total number of employees working at this firm? How many are used for the main product or product line?**

	Employment for firm:	**Employment for main product:**
Number:	.....	.....

3. **How many years old is the firm?**

Answer:	**……**	**year(s) old**

4. **Report the dollar value of the total amount produced by this firm over the last twelve months and that for the main product or product line. Please also report the dollar value of the amount the firm *could* have produced over the last twelve months if it had been operating at full capacity** (i.e. given the equipment and machinery already in place and ready to operate; with normal downtime; with the number of shifts, hours of operation and overtime pay that can be sustained under normal conditions and a realistic work schedule in the long run; labor, materials, utilities, etc. are fully available; the same product mix as the actual production).

	Total Production Value		**Production Value for Main Product**	
Actual Production:	**……**	**$**	**……**	**$**
Potential Production:	**……**	**$**	**……**	**$**

5. **What percentage of the firm's revenues in the last 12 months came from sales in New Zealand** (vs. other countries)**?**

Answer:	**……**	**% of sales originating in New Zealand**

6. **How many direct competitors does the firm face in its main product line?**

Answer:	**……**	**firms.**

SECTION B. Firm Decision Making and Plans

9. **By how much has your firm changed the price of its main product over the last twelve months and by how much do you think it will change the price of its main product over the next three/six/twelve months?** Please provide a quantitative answer in percentage terms (e.g. "-X%" for X percent decline in price, "+X%" for X percent increase in price, etc.) over each period.

Percentage change in the price:		
In the last six months:	**……**	**%**
In the next six months:	**……**	**% (relative to current price)**
In the next twelve months:	**……**	**% (relative to current price)**

10. **Has your firm changed the number of employees over the last twelve months and does it expect to change the number of employees over the next three/six/twelve months?** Please provide a quantitative answer in percentage terms (e.g. "-X%" for X percent decline in employment, "+X%" for X percent rise in employment, etc.) over each period.

Percentage change in the number of employees:		
In the last twelve months:	**……**	**%**
In the next six months:	**……**	**% (relative to current number)**

11. **Has your firm invested in new capital over the last twelve months and does it expect to invest in new capital over the next three/six/twelve months?** Please provide a quantitative answer for capital expenditures as a share of annual revenues over each period.

New capital expenditures as a share of annual revenues:		
In the last twelve months:	**……**	**%**
In the next six months:	**……**	**%**

12. **Has your firm experienced changes in unit costs during the last 12 months and by how much do you think your firm's unit costs will change over the next three/six/twelve months?** Please provide a quantitative answer in percentage terms over each period.

Percentage change in unit costs:		
In the last twelve months:	**……**	**%**
In the next six months:	**……**	**% (relative to current level)**

13. **Has your firm experienced changes in average wages during the last 12 months and by how much do you think your firm's average wages will change over the next three/six/twelve months?** Please provide a quantitative answer in percentage terms over each period.

Percentage change in average wages:		
In the last twelve months:	**……**	**%**
In the next six months:	**……**	**% (relative to current level)**

14. **Has your firm experienced changes in the number of units sold of your main product line or service during the last 12 months and by how much do you think your unit sales will change over the next three/six/twelve months?** Please provide a quantitative answer in percentage terms over each period.

Percentage change in number of units sold:		
In the last twelve months:	**……**	**%**
In the next six months:	**……**	**% (relative to current level)**

17. **If this firm was free to change its price** (i.e. suppose there was no cost to renegotiating contracts with clients, no costs of reprinting catalogues, etc.) **right now, by how much would it change its price?** Please provide a percentage answer. **By how much do you think profits would change as a share of revenues?** Please provide a numerical answer in percent.

Expected change in price:	**……**	**% changes**
Expected change in profits:	**……**	**% of revenues**

18. **For the next three questions, suppose that you get news that the general level of prices went up by 10% in the economy:**
    a. **By what percentage do you think your competitors would raise their prices on average?** …….. **%**
    b. **By what percentage would your firm raise its price on average?** …….. **%**
    c. **By what percentage would your firm raise its price if your competitors did not change their price at all in response to this news?** …….. **%**

19. **Suppose demand for goods in your industry were to increase by 10%. By what percentage would your firm ideally like its price to change (if it could do so freely, without constraints from previous contracts, etc.) relative to that of its competitors?** Please provide an answer in percentage terms. Answer: **…… %**

SECTION D. ECONOMIC EXPECTATIONS

For *all* subsequent inflation related questions, we consider three wordings:

D. "by how much do you think prices will/have change(d) overall in the economy"
E. "what will be/has been the overall inflation rate over the next/last 12 months"
F. "what will be/has been the inflation rate (specifically the *Consumer Price Index*) over the next/last 12 months"

Firms are randomly assigned to three groups of equal size where each group receives different version of the language.

Also, within each of these groups, firms are then randomly assigned to one of two sub-groups (6 groups total). There are two versions of questions 39 & 40 (see below).

22. **During the *last twelve* months, by how much do you think prices changed overall in the economy?** Please provide an answer in percentage terms.

Answer:	**……**	**%**

23. **During the *next twelve* months, by how much do you think prices will change overall in the economy?** Please provide an answer in percentage terms.

Answer:	**……**	**%**

24. **Please assign probabilities** (from 0-100) **to the following ranges of overall price changes in the economy over the next 12 months for New Zealand:** (Note that the probabilities in the column should sum to 100)

Percentage Price Changes in 12 Months	**Probabilities**	
More than 25%:	**……**	**%**
From 15 to 25%:	**……**	**%**
From 10 to 15%:	**……**	**%**
From 8 to 10%:	**……**	**%**
From 6 to 8%:	**……**	**%**
From 4 to 6%:	**……**	**%**
From 2 to 4%:	**……**	**%**
From 0 to 2%:	**……**	**%**
From 0 to -2%:	**……**	**%**
From -2 to -4%:	**……**	**%**
From -4 to -6%:	**……**	**%**
From -6 to -8%:	**……**	**%**
From -8 to -10%:	**……**	**%**
From -10 to -15%:	**……**	**%**
From -15 to -25%:	**……**	**%**
Less than -25%:	**……**	**%**
Total (the column should sum to 100%):	**100**	**%**

25. **Please assign probabilities** (from 0-100) **to the following ranges of overall price changes PER YEAR in the economy over the next 5-10 years for New Zealand:** (Note that the probabilities in the column should sum to 100)

Percentage Price Changes PER YEAR over the next 5-10 Years.	**Probabilities**	
More than 25%:	**……**	**%**
From 15 to 25%:	**……**	**%**
From 10 to 15%:	**……**	**%**
From 8 to 10%:	**……**	**%**
From 6 to 8%:	**……**	**%**
From 4 to 6%:	**……**	**%**
From 2 to 4%:	**……**	**%**
From 0 to 2%:	**……**	**%**
From -2 to 0%:	**……**	**%**
From -4 to -2%:	**……..**	**%**
From -6 to -4%:	**……..**	**%**
From -6 to -8%:	**……**	**%**
From -8 to -10%:	**……**	**%**
From -10 to -15%:	**……**	**%**
From -15 to -25%:	**……**	**%**
Less than -25%:	**……**	**%**
Total (the column should sum to 100%):	**100**	**%**

26. **Please assign probabilities** (from 0-100) **to the following ranges of price changes in your industry over the next 12 months:** (Note that the probabilities in the column should sum to 100)

Percentage Price Changes in 12 Months	**Probabilities**	
More than 25%:	**……**	**%**
From 15 to 25%:	**……**	**%**
From 10 to 15%:	**……**	**%**
From 8 to 10%:	**……**	**%**
From 6 to 8%:	**……**	**%**
From 4 to 6%:	**……**	**%**
From 2 to 4%:	**……**	**%**
From 0 to 2%:	**……**	**%**
From -2 to 0%:	**……**	**%**
From -4 to -2%:	**……**	**%**
From -6 to -4%:	**……**	**%**
From -6 to -8%:	**……**	**%**
From -8 to -10%:	**……**	**%**
From -10 to -15%:	**……**	**%**
From -15 to -25%:	**……**	**%**
Less than -25%:	**……**	**%**
Total (the column should sum to 100%):	**100**	**%**

27. **Please assign probabilities** (from 0-100) **to the following ranges of growth rates of the overall economy (real GDP) over the next 12 months:** (Note that the probabilities in the column should sum to 100)

Possible growth rates for real GDP	**Probabilities**	
More than 6% per year:	**……**	**%**
From 5 to 6% per year:	**……**	**%**
From 4 to 5% per year:	**……**	**%**
From 3 to 4% per year:	**……**	**%**
From 2 to 3% per year:	**……**	**%**
From 1 to 2% per year:	**……**	**%**
From 0 to 1% per year:	**……**	**%**
From -1 to 0% per year:	**……**	**%**
From -2 to -1% per year:	**……**	**%**
From -2 to -3% per year:	**……**	**%**
From -3 to -4% per year:	**……**	**%**
From -4 to -5% per year:	**……**	**%**
From -5 to -6% per year:	**……**	**%**
Less than -6% per year:	**……**	**%**
Total (each column should sum to 100%):	**100**	**%**

28. **Please assign probabilities** (from 0-100) **to the following ranges for what the unemployment rate might be in 12 months in New Zealand:** (Note that the probabilities in the column should sum to 100)

Possible Unemployment Rates in 12 Months	**Probabilities**	
More than 10%:	**……**	**%**
From 9 to 10%:	**……**	**%**
From 8 to 9%:	**……**	**%**
From 7 to 8%:	**……**	**%**
From 6 to 7%:	**……**	**%**
From 5 to 6%:	**……**	**%**
From 4 to 5%:	**……**	**%**
From 3 to 4%	**……**	**%**
Less than 3%:	**……**	**%**
Total (the column should sum to 100%):	**100**	**%**

SUBGROUP I:

31. Projecting ahead, to the best of your ability, please assign a percent likelihood to the following changes to unit costs over the next twelve months (values should sum to 100%).

- Unit costs down (less than -1%) ……. %
- Unit costs about unchanged (-1% to 1%) ……. %
- Unit costs up somewhat (1% to 3%) ……. %
- Unit costs up significantly (3% to 5%) ……. %
- Unit costs up very significantly (more than 5%) ……. %

32. Please indicate what probabilities you would attach to the various possible percentage changes to the CORE (excluding food and energy) CONSUMER PRICE INDEX over the next twelve months (values should sum to 100%).

- 4 percent or more ….. %
- 3.5 to 3.9 percent ….. %
- 3.0 to 3.4 percent ….. %
- 2.5 to 2.9 percent ….. %
- 2.0 to 2.4 percent ….. %
- 1.5 to 1.9 percent ….. %
- 1.0 to 1.4 percent ….. %
- 0.5 to 0.9 percent ….. %
- 0.0 to 0.4 percent ….. %
- Will decline ….. %

SUBGROUP II:

31. Projecting ahead, to the best of your ability, please assign a percent likelihood to the following changes to unit costs over the next twelve months (values should sum to 100%).

More than 25%:	**……**	**%**
From 15 to 25%:	**……**	**%**
From 10 to 15%:	**……**	**%**
From 8 to 10%:	**……**	**%**
From 6 to 8%:	**……**	**%**
From 4 to 6%:	**……**	**%**
From 2 to 4%:	**……**	**%**
From 0 to 2%:	**……**	**%**
From -2 to 0%:	**……**	**%**
From -4 to -2%:	**……..**	**%**
From -6 to -4%:	**……..**	**%**
From -6 to -8%:	**……**	**%**
From -8 to -10%:	**……**	**%**
From -10 to -15%:	**……**	**%**
From -15 to -25%:	**……**	**%**
Less than -25%:	**……**	**%**
Total (the column should sum to 100%):	**100**	**%**

32. Please indicate what probabilities you would attach to the various possible percentage changes to the CORE (excluding food and energy) CONSUMER PRICE INDEX over the next twelve months (values should sum to 100%).

More than 25%:	**……**	**%**
From 15 to 25%:	**……**	**%**
From 10 to 15%:	**……**	**%**
From 8 to 10%:	**……**	**%**
From 6 to 8%:	**……**	**%**
From 4 to 6%:	**……**	**%**
From 2 to 4%:	**……**	**%**
From 0 to 2%:	**……**	**%**
From -2 to 0%:	**……**	**%**
From -4 to -2%:	**……..**	**%**
From -6 to -4%:	**……..**	**%**
From -6 to -8%:	**……**	**%**
From -8 to -10%:	**……**	**%**
From -10 to -15%:	**……**	**%**

From -15 to -25%:	**……**	**%**
Less than -25%:	**……**	**%**
Total (the column should sum to 100%):	**100**	**%**

33. **What annual percentage rate of change in overall prices do you think the Reserve Bank of New Zealand is trying to achieve?** *Answer: ……..……..* *%*

Thank you for participating in the survey. When we call you on the phone, we will ask a few additional short follow-up questions to help us better understand how managers process information about the economy. We appreciate your patience and understanding in participating in this survey.

PAPER SURVEY ENDS HERE. PHONE SURVEY CONTINUES BELOW. THIS SECTION IS NOT BE PROVIDED TO RESPONDENTS AHEAD OF TIME. INSTEAD, AT THE END OF INTERVIEW, WE READ THEM TEXT BELOW, WHICH PROVIDES THEM WITH NEW INFORMATION AND ASKS THEM TO ANSWER NEW QUESTIONS. HALF OF THE FIRMS IS RANDOMLY SELECTED TO RECEIVE INFORMATION.

SECTION E. EXPERIMENT:.

You said that you think the Reserve Bank of New Zealand targets an annual rate of overall price changes in the economy of around [X%]. The Reserve Bank of New Zealand's official target range is between 1% and 3%, so approximately 2% on average per year. In light of this, we would like to ask you a few follow-up questions.

34. **During the *next twelve* months, by how much do you think prices will change overall in the economy?** Please provide an answer in percentage terms. **…… %**

35. **Over the *five-ten years*, by what average annual rate do you think prices will change overall in the economy?** Please provide an answer in percentage terms. **…… %**

36. **What do you think will be the annual growth rate of real GDP in New Zealand in twelve months?** Please provide an answer in percentage terms. **…… %**

37. **In twelve months, what do you think the unemployment rate will be in New Zealand?**
…… %

39. **During the next twelve months, by how much do you think prices in your industry will change?** Please provide an answer an percentage terms. **…… %**

42. **During the next twelve months, by how much do you think the price of your main product is going to change?** Please provide an answer in percentage terms. **…… %**

Wave #6

SECTION A. ECONOMIC EXPECTATIONS
For each follow-up, we want to present firms with the same wording as they had in the previous survey.

1. **During the *next twelve* months, by how much do you think prices will change overall in the economy?** Please provide an answer in percentage terms. **…… %**

2. **Over the *five-ten years*, by what average annual rate do you think prices will change overall in the economy?** Please provide an answer in percentage terms. **…… %**

3. **What do you think will be the annual growth rate of real GDP in New Zealand in twelve months?** Please provide an answer in percentage terms. **…… %**

4. **In twelve months, what do you think the unemployment rate will be in New Zealand? …… %**

6. **During the next twelve months, by how much do you think prices in your industry will change?** Please provide an answer an percentage terms. **…… %**

8. **By how much has your firm changed the price of its main product over the last six months and by how much do you think it will change the price of its main product over the next six/twelve months?** Please provide a quantitative answer in percentage terms (e.g. "-X%" for X percent decline in price, "+X%" for X percent increase in price, etc.) over each period.

Percentage change in the price:		
In the last six months:	**……**	**%**
In the next six months:	**……**	**% (relative to current price)**
In the next twelve months:	**……**	**% (relative to current price)**

9. **Has your firm changed the number of employees over the last six months and does it expect to change the number of employees over the next six months?** Please provide a quantitative answer in percentage terms (e.g. "-X%" for X percent decline in employment, "+X%" for X percent rise in employment, etc.) over each period.

Percentage change in the number of employees:		
In the last six months:	**……**	**%**
In the next six months:	**……**	**% (relative to current number)**

10. **Has your firm invested in new capital over the last six months and does it expect to invest in new capital over the next six months?** Please provide a quantitative answer for capital expenditures as a share of annual revenues over each period.

New capital expenditures as a share of annual revenues:		
In the last six months:	**……**	**%**
In the next six months:	**……**	**%**

11. **Has your firm experienced changes in unit costs during the last six months and by how much do you think your firm's unit costs will change over the next six months?** Please provide a quantitative answer in percentage terms over each period.

Percentage change in unit costs:		
In the last six months:	**……**	**%**
In the next six months:	**……**	**% (relative to current level)**

12. **Has your firm experienced changes in average wages during the last six months and by how much do you think your firm's average wages will change over the next six months?** Please provide a quantitative answer in percentage terms over each period.

Percentage change in average wages:		
In the last six months:	**……**	**%**
In the next six months:	**……**	**% (relative to current level)**

13. **Has your firm experienced changes in the number of units sold of your main product line or service during the last six months and by how much do you think your unit sales will change over the next six months?** Please provide a quantitative answer in percentage terms over each period.

Percentage change in number of units sold:

In the last six months:	**……. %**	
In the next six months:	**……**	**% (relative to current level)**

14. **Please assign probabilities** (from 0-100) **to the following ranges of overall price changes in the economy over the next 12 months for New Zealand:** (Note that the probabilities in the column should sum to 100)

Percentage Price Changes in 12 Months	**Probabilities**	
More than 25%:	**……**	**%**
From 15 to 25%:	**……**	**%**
From 10 to 15%:	**……**	**%**
From 8 to 10%:	**……**	**%**
From 6 to 8%:	**……**	**%**
From 4 to 6%:	**……**	**%**
From 2 to 4%:	**……**	**%**
From 0 to 2%:	**……**	**%**
From 0 to -2%:	**……**	**%**
From -2 to -4%:	**……**	**%**
From -4 to -6%:	**……**	**%**
From -6 to -8%:	**……**	**%**
From -8 to -10%:	**……**	**%**
From -10 to -15%:	**……**	**%**
From -15 to -25%:	**……**	**%**
Less than -25%:	**……**	**%**
Total (the column should sum to 100%):	**100**	**%**

15. **Please assign probabilities** (from 0-100) **to the following ranges of overall price changes PER YEAR in the economy over the next 5-10 years for New Zealand:** (Note that the probabilities in the column should sum to 100)

Percentage Price Changes PER YEAR over the next 5-10 Years.	**Probabilities**	
More than 25%:	**……**	**%**
From 15 to 25%:	**……**	**%**
From 10 to 15%:	**……**	**%**
From 8 to 10%:	**……**	**%**
From 6 to 8%:	**……**	**%**
From 4 to 6%:	**……**	**%**
From 2 to 4%:	**……**	**%**
From 0 to 2%:	**……**	**%**
From -2 to 0%:	**……**	**%**
From -4 to -2%:	**……..**	**%**
From -6 to -4%:	**……..**	**%**
From -6 to -8%:	**……**	**%**
From -8 to -10%:	**……**	**%**
From -10 to -15%:	**……**	**%**
From -15 to -25%:	**……**	**%**
Less than -25%:	**……**	**%**
Total (the column should sum to 100%):	**100**	**%**

16. **Please assign probabilities** (from 0-100) **to the following ranges of price changes in your industry over the next 12 months:** (Note that the probabilities in the column should sum to 100)

Percentage Price Changes in 12 Months	**Probabilities**	
More than 25%:	**……**	**%**
From 15 to 25%:	**……**	**%**
From 10 to 15%:	**……**	**%**
From 8 to 10%:	**……**	**%**
From 6 to 8%:	**……**	**%**
From 4 to 6%:	**……**	**%**
From 2 to 4%:	**……**	**%**
From 0 to 2%:	**……**	**%**

From -2 to 0%:	**……**	**%**
From -4 to -2%:	**……**	**%**
From -6 to -4%:	**……**	**%**
From -6 to -8%:	**……**	**%**
From -8 to -10%:	**……**	**%**
From -10 to -15%:	**……**	**%**
From -15 to -25%:	**……**	**%**
Less than -25%:	**……**	**%**
Total (the column should sum to 100%):	**100**	**%**

17. **Please assign probabilities** (from 0-100) **to the following ranges of growth rates of the overall economy (real GDP) over the next 12 months:** (Note that the probabilities in the column should sum to 100)

Possible growth rates for real GDP	**Probabilities**	
More than 6% per year:	**……**	**%**
From 5 to 6% per year:	**……**	**%**
From 4 to 5% per year:	**……**	**%**
From 3 to 4% per year:	**……**	**%**
From 2 to 3% per year:	**……**	**%**
From 1 to 2% per year:	**……**	**%**
From 0 to 1% per year:	**……**	**%**
From -1 to 0% per year:	**……**	**%**
From -2 to -1% per year:	**……**	**%**
From -2 to -3% per year:	**……**	**%**
From -3 to -4% per year:	**……**	**%**
From -4 to -5% per year:	**……**	**%**
From -5 to -6% per year:	**……**	**%**
Less than -6% per year:	**……**	**%**
Total (each column should sum to 100%):	**100**	**%**

18. **Please assign probabilities** (from 0-100) **to the following ranges for what the unemployment rate might be in 12 months in New Zealand:** (Note that the probabilities in the column should sum to 100)

Possible Unemployment Rates in 12 Months	**Probabilities**	
More than 10%:	**……**	**%**
From 9 to 10%:	**……**	**%**
From 8 to 9%:	**……**	**%**
From 7 to 8%:	**……**	**%**
From 6 to 7%:	**……**	**%**
From 5 to 6%:	**……**	**%**
From 4 to 5%:	**……**	**%**
From 3 to 4%	**……**	**%**
Less than 3%:	**……**	**%**
Total (the column should sum to 100%):	**100**	**%**

19. **What annual percentage rate of change in overall prices do you think the Reserve Bank of New Zealand is trying to achieve?** *Answer: ……..…….. %*

APPENDIX 6

Information Sheet for Survey Participants

Auckland Field Research Consultancy Limited

Date Information Sheet Produced:

25 July 2015

Project Title

Firms' Inflation Expectations

An Invitation

My name is Dr Saten Kumar, I am an Associate Professor in the Economics Department at AUT and Consultant / Director at the Auckland Field Research Consultancy Limited. I invite you to participate in the following research.

This is a phone survey. It is about your firms' expectations about the key macroeconomic indicators in New Zealand.

To participate in this survey, you will have to inform me by sending an email to skumar@aut.ac.nz. If you agree to participate in this survey, we will phone you and ask questions. Please complete as many of the questions as you can. ***Note that your identity will be revealed only to the researcher. You will not be identified to anyone else.***

This survey should take no more than 15 minutes to complete.

Participation is voluntary and you may withdraw at any time prior to the completion of data collection. Participation or non-participation will neither advantage nor disadvantage the participant.

What is the purpose of this research?

The aim of this research is to investigate how firms form their inflation expectations. Results may yield useful implications for the conduct of monetary (Reserve Bank) policy in New Zealand. We aim to produce a research paper (possibly a journal article) using the collected data.

How was I identified and why am I being invited to participate in this research?

Your firm is selected because it is listed on the Kompass New Zealand and Knowledge Management Services (KMS) databases. Kompass New Zealand and KMS databases contain comprehensive profiles of New Zealand businesses including details on their activities, brands, people, products and services. Access to these databases are via online (subscription required).

What will happen in this research?

This is a phone survey. We ask you questions related to your business operations. We also ask questions about your expectations on the New Zealand economy. Please inform me about your willingness to participate by sending an email to skumar@aut.ac.nz. After the survey, we will use the information provided by you to identify and explain the degree of firms' attentiveness to macroeconomics conditions in New Zealand.

What are the discomforts and risks?

There are no discomforts and risks involved by participating in this survey. You may not answer any question if you wish. You can withdraw from completing this survey at any time.

How will these discomforts and risks be alleviated?

If you do not wish to complete the survey, you do not have to.

What are the benefits?

This study provides useful insights about inflation expectations. Findings may yield useful implications for the conduct of monetary (Reserve Bank) policy in New Zealand.

How will my privacy be protected?

All replies are treated as 100% confidential. Only the researcher will be able to identify the participant.

What are the costs of participating in this research?

The only cost to you is approximately 15 minutes of your time that it will take for you to answer the questions.

What opportunity do I have to consider this invitation?

Participation is entirely voluntary and if you do not wish to complete the survey you do not have to.

How do I agree to participate in this research?

By agreeing to answer the questions, you indicate your consent to participate in this research.

Will I receive feedback on the results of this research?

The analysis and results of this study will be available to all firms (it will be available as a working paper at: http://ideas.repec.org/e/pku113.html).

What do I do if I have concerns about this research?

Any concerns regarding the nature of this project should be notified in the first instance to the Project Supervisor, Dr Saten Kumar, skumar@aut.ac.nz, (+649) 921 9999 ext 5718.

Concerns regarding the conduct of the research should be notified to the Executive Secretary of AUTEC, Kate O'Connor, *ethics@aut.ac.nz* , (+649) 921 9999 ext 6038.

Whom do I contact for further information about this research?

Researcher Contact Details:

Dr. Saten Kumar; skumar@aut.ac.nz; (+649) 921 9999 ext 5718.

Project Supervisor Contact Details:

Dr. Saten Kumar; skumar@aut.ac.nz; (+649) 921 9999 ext 5718.