FIRMS' INFLATION AND WAGE EXPECTATIONS IN TIMES OF HIGH INFLATION

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Abstract: Using a new survey of French firms' inflation expectations that predates the inflation spike, we study how the inflation expectations and own-wage expectations of firms evolved as the inflation environment changed. We show that inflation expectations under-responded to the initial surge but then persistently overshot actual inflation dynamics. As inflation rose, firms initially perceived inflation to be less persistent than in previous years, an effect that dissipated over time. Their wage expectations became increasingly disconnected from their aggregate inflation expectations during the high inflation era, and the pass-through of both price and wage inflation expectations into firms' actual prices and, to a lesser extent, to employment. This suggests that the scope for wage-price spirals is likely more limited than one might have expected from the surge in inflation and inflation expectations.

JEL: E2, E3, E4
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1. Introduction

As inflation reached levels unseen in recent decades in most advanced economies, a primary concern was the extent to which this rise in inflation might become ingrained in inflation expectations, especially those of firms due to their role in setting prices. But because there are few surveys of firms' inflation expectations, it has been difficult to assess how firms' inflation expectations changed during this period, as well as whether those inflation expectations affected their willingness to raise workers' wages. In this paper, we use a survey of firms in France to study these questions.

This survey has four unique characteristics that are not commonly available in other surveys of firms. First, it started prior to the rise of inflation, with pilot waves being run in 2020. Thus, it covers both the pre-inflation periods as well as the time during which inflation was high. Second, the survey includes questions about inflation at different horizons, so it can speak to the persistence of the inflation process, as perceived by firms, and whether it changed during the high inflation period. Third, it includes questions on firms' expectations about the growth of wages in their firm over the next year, thereby providing an unusual link between aggregate inflation expectations and firm-level wage expectations. Finally, the survey also includes questions about the planned decisions of firms, such as their expected and past price changes and employment growth, so that expectations can be related to their decisions.

With this unique data, we document several new facts. First, as inflation rose sharply in France in 2022, firms were initially surprised by the extent of the increase, with both their perceptions and expectations significantly under-responding. However, by 2023, both the inflation expectations and perceptions of firms had significantly overshot actual inflation dynamics. The undershooting following by overshooting during this one episode is consistent with the broader patterns identified in Angeletos, Huo and Sastry (2021) and with post-pandemic patterns observed in other countries. Furthermore, disagreement among firms about

future inflation rose sharply during this period, consistent with what has been observed for households (Dong et al. 2024). Wage expectations followed a similar, albeit more muted, pattern.

Second, as the inflation rate surged, the term structure of firms' inflation expectations pointed to a decline in the persistence of inflation, but this decline was short-lived. In other words, firms initially expected the rise in inflation to be more transitory than what they usually expected for inflation changes, but their expectations ultimately went back to assuming the same persistence as usual. One possible explanation for the decline in persistence could be that the inflation surge was initially tied to a sharp increase in energy prices, which might have been expected to have only a transitory effect on inflation dynamics. Regardless of the source, firms initially perceived the inflation spike as driven by a different process than during the low inflation period.

Third, we find that whereas during the low inflation period firms' wage expectations were closely tied to their expectations of year-ahead inflation and their beliefs about recent inflation, the inflation surge led to a significant weakening of this relationship. In contrast, we consistently observe almost no relationship between *long-run* inflation expectations and firms' wage expectations. Instead, it appears that firms expect their year-ahead wage adjustments to primarily reflect recent price dynamics as well as those anticipated over the near future. The irrelevance of longer-run expectations beyond the contract duration (since most wages are changed annually) is consistent with the logic of Werning (2022). We also document heterogeneity in the pass-through between inflation and wage expectations across firms. First, the pass-through is generally stronger for firms that are more attentive to inflation. Second, the lower pass-through during the high inflation period primarily comes from the subset of firms that expected a very high inflation rate: these firms did not expect to adjust their wage

expectations to the inflation surge and they were more numerous during the high inflation period.

Finally, we consider the degree to which expectations pass through into decisions and the extent to which (and whether) that changed during the high-inflation period. We document evidence consistent with a pronounced *decline* in the pass-through of expectations into decisions. To do so, we characterize the extent to which higher inflation and wage expectations translate into firms' subsequent pricing and employment decisions. While we can identify a strong passthrough from these expectations into firms' ex-post prices and employment during normal times, this pass-through significantly weakened during the high-inflation period. This suggests that, even as wage and inflation expectations rose sharply during the inflation surge, their likely effect on prices and employment diminished, muting their importance during this particular episode. This changing pass-through is again primarily explained by the subset of firms expecting very high inflation (i.e. an "inflation disaster"). For these firms, the pass-through into decisions tends to be very low, and during the inflation surge, there was a significant increase in the share of these firms. Among firms who were not anticipating this type of inflation disaster, we observe little change in the pass-through across high or low inflation environments.

Our paper speaks to several recent literatures. One focuses on the extent to which the high inflation surge may have altered the expectations formation process. Bracha and Tang (2019), for example, study how the degree of inattention to inflation by U.S. households, as measured by people saying "I don't know" when asked about current inflation levels, historically declines when inflation is higher. Korenok, Munro and Chen (2023) show that, across many countries, Google searches for "inflation" rise with the level of inflation whenever inflation exceeds a threshold around 4%. Pfäuti (2023) estimates how strongly inflation expectations of households and professionals in the U.S. respond to past forecast errors and

shows that higher inflation periods are associated with larger responses to past errors, consistent with changing inattention. Weber et al. (2023) show that the strength of treatment effects in RCTs involving information about inflation declined during the high inflation period in the U.S. and Euro-area, both for firms and households. They also find that, among Euro-area households, absolute nowcast errors about inflation fell during the inflation surge as households became seemingly more aware of actual inflation rates. Relative to these papers, our evidence is novel because it is for firms in France, it includes not just inflation but also expectations of firms' wages, and because we reach qualitatively different conclusions: ultimately, we find little change in firms' nowcast errors about inflation during the surge.

Second, our paper contributes to a literature on the possibility of wage-price spirals (e.g. Lorenzoni and Werning 2023), which hinges in part on the degree to which inflation, either past or anticipated, translates into wage increases which in turn fuel further price increases. The empirical evidence on the extent to which inflation passes through into wages is limited. Buchheim et al. (2024) find only a small passthrough of expected inflation into wages, as do Coibion et al. (2018) and Savignac et al. (2024) in low-inflation contexts.[1] Relative to this prior work, we find a somewhat larger passthrough of inflation into wages once we control for both perceived and expected inflation, reflecting the fact that past inflation can take time to be incorporated into wages. Importantly, when firms expect significantly higher inflation (an "inflation disaster"), their passthrough of inflation expectations into wages is much more muted, suggesting that there is an upper bound on the scope for wage-price spirals.

We also contribute to a burgeoning literature investigating the importance of inflation expectations and expected costs in affecting firms' decisions, and in particular how this varies with the economic environment (e.g. Abberger et al. 2024, Akarsu et al. 2024, Baumann et al. 2024, Yotzov et al. 2025). In contrast to this prior work which has emphasized higher

[1] Jain et al. (2023) and Hadjini et al. (2023) document a perceived lower passthrough looking at household expectation surveys in Canada and in the United States.

passthroughs when inflation is high, we find that the passthrough of expectations into decisions is, if anything, *smaller* during the high inflation period. Again, key to this result is the subset of firms who anticipate significantly higher inflation: among these firms, the passthrough is much smaller than for others and their growing importance during the inflation surge drives the change in average passthrough.

More generally, our paper is closely related to the literature on the development of firm surveys of inflation expectations. Candia, Coibion and Gorodnichenko (2023) review existing surveys of firms' macroeconomic expectations and emphasize the sparsity of available data of this type. Grasso and Ropele (2023) describe the Italian Survey of Inflation and Growth Expectations while Baumann et al. (2024) provide details on the ECB's new Survey on the Access to Finance of Enterprises (SAFE), which includes questions on macroeconomic expectations. Other countries with existing surveys of firms' inflation expectations include Uruguay (Frache and Lluberas 2019, Borraz, Mello and Zacheo 2020), Ukraine (Coibion and Gorodnichenko 2015) and the U.S. (Meyer and Sheng 2022). The pilot phase of the new French survey of firms is discussed in Savignac et al. (2024).

The paper is organized as follows. In Section 2, we describe the new survey of French firms. Section 3 describes the evolution of inflation expectations in the survey, how they relate to firm characteristics, and what they tell us about the perceived persistence of inflation. Section 4 documents how firms' expectations about their own wage growth correlate with their inflation perceptions and expectations. Section 5 focuses on the passthrough of expectations into pricing and employment decisions while Section 6 concludes.

2. The Survey

The survey of French firms' inflation expectations has been going on quarterly since 2021Q4. It is implemented as an additional module to what is otherwise a monthly survey of French

firms, the *Enquete Mensuelle de Conjoncture* (Monthly Outlook Survey). These surveys are conducted by the local branches of Banque de France. The Monthly Outlook Surveys is a short survey with qualitative questions about firms' perceptions and expectations about their own activity, employment, demand and prices during the month and over short horizons (within one to 3 months). Every quarter, about 1,500 managers of various firms that are participating in the Monthly Outlook Survey are asked to answer four additional questions over the phone about their inflation perceptions, expectations and about their expectation of wage growth over the next year.[2] A given firm manager answers the inflation expectations survey once a year (each firm is allocated to a given quarter of the year) and overall, our sample contains more than 6,000 answers each year (see Table 1 for details on the sample composition).[3] Prior to the official start of the survey, two smaller pilot waves were run in 2020Q4 and 2021Q2. These included only two regions in France and a much smaller number of firms (about 1,000 overall). The pilot waves included different question formulations to measure expectations, the results of which are described in more detail in Savignac et al. (2024). Overall, the sample of individual answers covers the period 2020Q4 – 2024Q4 for about 8,000 different firms. More than half of firms have been surveyed 3 times or more during that period (each firm being surveyed once a year).

The first question of the quarterly survey module on inflation expectations focuses on the perceived level of inflation and is phrased as follows:

"As a percentage, what is, to your knowledge, the current inflation rate in France?"

Respondents are asked to provide a quantitative answer. Following this, they are asked to provide a point forecast for their inflation expectations over the next 12 months:

"As a percentage, what do you think will be the inflation rate in France in one year?"

[2] The Monthly Business Survey is conducted the last three opening days of month *m* and the three first opening days of month *m+1*. The quarterly module is run during the last days of February/first days of March for Q1, during the last days of May/first days of June for Q2, during the last days of August/first days of September for Q3, during the last days of November/first days of December for Q4.

[3] Each business owner is interviewed only once a year for two reasons: first, to keep the response rate sufficiently high: second, to prevent learning effects over time (Kim and Binder, 2023)

This is followed by a question that measures their longer-run inflation expectations, again through a point forecast:

"As a percentage, what do you think will be the inflation rate in France in 3 to 5 years?"

The final question asks firms about what they think will happen to wages over the next year in their firm:

"As a percentage, what do you think will be the growth rate in base wages (gross, excluding bonuses) in your firm over the next 12 months?"

Together, these four questions provide a unique view of firms' inflation expectations in France. Unlike other surveys of firms, it includes not just forward-looking expectations but also their perceptions about recent inflation, which can be used to study how informed they are about recent inflation dynamics. And unlike other surveys of firms, the survey also includes a question about wages in their firm, thereby combining forecasts about the aggregate economy as well as firm-specific outcomes. Furthermore, because these questions are asked as part of a larger monthly survey that asks managers about their decisions in previous months as well as their expected decisions in subsequent months, we have the ability to study how inflation expectations are related to these decisions. We explore these additional questions in Section 5.

3. Firms' inflation expectations over 2021-2024

In this section, we describe the evolution of firms' expectations as well as some of the characteristics and properties of these expectations.

3.1 Time series evidence

Panel A of Figure 1 presents the evolution of average inflation expectations over time for different forecasting horizons, while Panel B plots the equivalent figure for the median expectation, along with actual inflation in France. Prior to the surge, inflation expectations and perceptions were all in the neighborhood of 2-2.5%. Perceptions of inflation were consistently

higher than actual inflation. As the inflation rate rose rapidly starting in early 2022 with the Russian invasion of Ukraine, perceptions of inflation first rose in line with actual inflation but, by 2022Q3 overshot actual inflation and have since remained well above actual inflation, with an average upward bias of around 1-1.5 percentage points.[4] This is surprising as other work has emphasized that as inflation rose during this period, the size of nowcast errors for households tended to decline (Weber et al. 2023). With French firms, this does not seem to be the case except for a short period early on, otherwise they have maintained a consistent upward bias in their perceptions of actual inflation.

In terms of 1-year ahead inflation expectations, we can see that as inflation surged in 2022, inflation expectations rose but initially undershot relative to the levels that inflation would reach a year later. But, by the second half of 2022, year-ahead inflation expectations were nearly as high as firms' perceptions of inflation and, even though they declined more rapidly than perceptions, they have consistently overstated what inflation would be in the following year by several percentage points. The pattern during this particular episode can therefore be described as one of initial undershooting followed by a very persistent overshooting of inflation expectations, consistent with the dynamics found in Angeletos, Huo and Sastry (2021). Longer-run inflation expectations display similar dynamics, although changing by smaller amounts both upward and downward. Looking at median measures of expectations yields similar results.

Panel C of Figure 1 plots the cross-sectional dispersion in these expectations. While there is little change in disagreement about contemporaneous inflation during this sample, we see a significant rise in disagreement about both short-run and long-run inflation. This rise in disagreement as the inflation rate rose is consistent with the broader pattern identified in Mankiw, Reis and Wolfers (2004) for households and professional forecasters. To gain more insight into the sources of this disagreement, Figure 2 plots distribution of answers over time

[4] See also Appendix Table 1 for descriptive statistics calculated over the full sample period.

for each of the three measures of inflation expectations. The most striking pattern is in Panel C of Figure 2, which shows the time-varying distribution of long-run inflation expectations. Prior to the surge, the vast majority of answers were concentrated from 0-3%. As the inflation rate rose, the share of firms responding that they expected long-run inflation to be 1-2% stayed relatively constant at around 30% of responses. What changed was that with higher inflation, there was now a large mass of people predicting much higher long-run levels of inflation of 5-6% but also even levels above 8% of inflation. In other words, we can see that there were many firms who continued to believe that in the long-run inflation would be brought back down to the ECB's target, but there was also a large group of firms who believed that inflation would remain very high for an extended period of time. Over the same period, Hilscher et al. (2025) show that the probability of inflation disasters in a 5-year horizon perceived by financial markets participants increased markedly in the euro area. It is striking that both the increase in the share of firms expecting very high inflation and the increase in the probability of inflation disasters as perceived by financial markets coincide. Since 2023Q3, the share of firms expecting inflation to be between 1 and 2% has been progressively coming back to levels observed at the end of 2021 when inflation started to increase.

3.2 Expectations and firm characteristics

Are there particular firm-level characteristics that determine or shape their inflation expectations? To assess this, we follow Savignac et al. (2024) who examined the pilot waves of the survey and regress firms' expectations on some observable characteristics of the firms. Specifically, we consider the broad sector of the firm: construction, manufacturing or services. We also control for the size of the firm, in bins for small (<50 employees), medium (50-250 employees) or large (>250 employees). Following Kim and Binder (2023), we also test for panel conditioning effects by controlling for the number of times the respondent has

participated in prior waves. This is to determine if learning about inflation or wages takes place from the act of participating in the survey. We also control for time and region fixed effects.

We report results from these regressions in Table 2. There are some non-trivial average differences in beliefs by sector. For example, construction firms systematically perceive and expect higher inflation than firms in the service sector, by 25 to 50 basis points depending on the measure. Firms in the manufacturing tend to have lower expectations than in both the construction and services sectors. We also find that larger firms tend to have lower inflation perceptions and expectations than smaller firms, with the effects increasing monotonically in size. Differences are large in economic terms: firms with more than 250 employees expect inflation to be 0.7 percentage points lower on average than firms with less than 50 employees. These differences in expectations according to the size of the firm tend to be more pronounced during the period of high inflation. (see Appendix Figure 1).

Finally, like Kim and Binder (2023), we find some evidence of a limited panel conditioning effect. As firms participate in the survey, they tend to change their expectations, reducing them on average, which brings them closer to e.g. professional forecasts given the positive bias that firms' expectations display on average. Interestingly, there is little learning effect when it comes to inflation perceptions, so it does not appear that firms are learning much about actual inflation from participating in the survey. Instead, the effects are more pronounced for inflation expectations, particularly at longer horizons. However, these effects are relatively small, on the order of 20 to 30 basis points, whereas Kim and Binder (2023) found effects as large as two percentage points in the New York Fed's Survey of Consumer Expectations. However, because firms in the French survey participate only once per year (rather than monthly in the SCE), a smaller panel conditioning effect is to be expected.[5]

[5] In Appendix Figure 1, we present estimates of each of these effects for each survey wave separately to assess if there has been much variation over time as the inflation rate increased. Overall, we find very few changes over time along these dimensions. One noticeable change is inflation differences by sector: these do seem to decline

3.3 Perceived Persistence of Inflation

One of the unique characteristics of the French survey of firms is that it includes beliefs about inflation at multiple horizons, including perceptions, one-year ahead expectations as well as longer-run inflation expectations. No other survey of firms that we know of measures all three simultaneously. This is useful because it allows us to characterize the perceived persistence of the inflation process on the part of firms, i.e. how long-lived innovations to recent inflation are expected to be.

We can quantify this by projecting forward-looking measures of expected inflation on past inflation. For example, if we regress 1-year ahead inflation expectations on perceptions of inflation over the last year, the estimated coefficient would identify the perceived AR(1) coefficient of inflation at an annual frequency. If we regress long-run inflation expectations on perceived inflation, we would similarly infer the perceived persistence of inflation over this longer horizon. Because each firm provides measures of perceived and expected inflation in each wave, we can run this regression using cross-sectional variation within each wave and thereby quantify the time-variation in this perceived persistence. We plot the results from these quarterly estimates of persistence using one-year inflation forecasts in Panel A of Figure 3 and using long-run inflation forecasts in Panel B of Figure 3. In each case, we see a decline in the perceived persistence of the inflation process take hold when the inflation rate surges in 2022. Using year-ahead forecasts, we see for example that the perceived persistence of the inflation rate falls from around 0.8 in 2022Q1 when inflation first started rising (and before expectations responded strongly) to 0.5 by 2023. This indicates that the rise in inflation was seen as less persistent by firms than typical inflation variation. In a symmetric way, we also observe an increase in persistence at the end of 2023 and in 2024 when inflation was lower. We see a similar pattern when looking at the implied persistence from regressing long-run forecasts on

in absolute size during the sample, pointing to some convergence in inflation expectations across sectors, especially for longer-run expectations.

perceptions of inflation (Panel B). We can also measure the perceived persistence of the inflation progress by regressing long-run expectations on year-ahead inflation expectations (Panel C) or long-run expectations on both perceived and year-ahead inflation expectations (Panel D). In each case, we first see a decline in the perceived persistence of inflation when inflation rises, but by 2024, the perceived persistence of inflation had returned to its 2020-2021 value.[6]

These results suggest that when inflation started surging in Europe in 2022, firms viewed the source as differing from prior inflation movements and perceived it as likely to be more transient than typical inflation movements. Interestingly, this is at odds with the finding in Weber et al. (2023) who find that, among U.S. households, there was an increase in the perceived persistence of inflation during the same period. It is not possible at this stage to discern whether this difference arises from looking at households or firms, or if perhaps the difference reflects the U.S. versus the euro area. But, in either case, it is clear that the initial perspective of French firms about the inflation outlook was quite different during this period than was the case of U.S. households.

4. Wage Growth and Inflations Expectations

Another unique dimension of this survey is that, in addition to measuring firms' inflation perceptions and expectations, it also asks them about their expectations for wage growth in their firm over the next 12 months.[7] This makes it possible to study the relationship between firms' inflation expectations and their expectations about their own wage growth.

[6] We find very similar results when looking at year-on-year revisions of firms' expectations. These revisions are calculated as the difference between the answer given by firm *i* at date *t+4* and the answer given by the same firm one year before at date *t* (see Appendix Figure 2).

[7] In the Appendix, we compare for a subsample of about 1,200 firms the wage growth expectation as reported by the business owner with the actual outcome of wage bargaining in the same firm (the wage agreement can be signed before or after the survey). We find a strong contemporaneous correlation between the two variables (Figures 3 and 4 in the Appendix) and no systematic bias in their answers (Appendix Figure 5).

4.1 Aggregate and cross sectional evidence

Figure 4 (Panel A) plots date by date the average, median and standard deviation for firms' year-ahead own-wage expectations. There are several notable differences compared to inflation expectations. First, while there is a similar under-reaction to the rise in wage inflation in 2022 as for aggregate inflation (i.e. forecasts of wage inflation are significantly lower than what wage inflation turns out to be a year later), by the end of 2022, firms' own-wage expectations are very close on average to what actually subsequently happened to their wages over the next year. In other words, we do not see the overshooting pattern that characterized firms' aggregate inflation expectations. With wages, the initial undershooting in 2022 is the only visible deviation from a full-information response. Second, there is a limited increase in disagreement about future wages across firms during the high inflation period even though they started to disagree much more about future inflation. By itself, this already suggests that there must have been a limited passthrough of expected inflation into their own wages during this period, or the rise in disagreement about inflation would have led to a corresponding rise in disagreement about wages, something we do not observe. Looking at how the distribution of answers evolve over time (Figure 4, panel B), we observe more frequent answers above 3 or 4% until the end of 2022. Since 2023Q3 the share of firms expecting wages to rise by more than 3% has declined, while the share of firms expecting wages to rise by less than 2% has continuously increased to reach more than 60% at the end of 2024.

Looking at systematic differences across firms, we find that most patterns are opposite to the ones found for inflation (Table 2). In particular, larger firms systematically expect higher growth in their wages than smaller firms. Wage growth expectations are systematically lower in the construction and to a lesser extent in the manufacturing sector than in services. Finally, we do not observe any statistically significant panel conditioning effect. This is again consistent with earlier evidence on learning effects in Kim and Binder (2023), who show that learning

takes place primarily with regards to topics that agents tend to be less informed about in the first place. Firm-specific variables are generally better understood by firms, so limited panel conditioning effects are to be expected in this context. We also observe that some of these systematic differences have moved over the period (Appendix Figure 1). The most striking finding is that firm size differences in own-wage expectations increased sharply as the inflation rate went up then largely disappeared as the inflation rate came back down. Larger firms increased their wage expectations much more as the inflation rate rose than did smaller firms, with the gap exceeding 1 percentage point in 2023Q1.

4.2 Linking wage expectations to inflation perceptions and expectations

Figure 5 presents a visual representation of the link between beliefs about inflation and about own-wage growth. Panel A presents a scatter plot of inflation perceptions versus wage growth expectations, while Panels B and C present equivalent scatter plots for 12-month ahead and 3 to 5-year ahead inflation expectations against own-wage growth expectations respectively.

Two things jump out from the figure. First, there seems to be a strong correlation between inflation perceptions and expected wage growth at low inflation levels, as well as for 12-month ahead inflation expectations with expected wage growth at low inflation levels. In contrast, there is little correlation between longer-run inflation expectations and wage expectations of firms. This appears qualitatively consistent with the logic of Werning (2022), who suggests that expectations embodied in fixed duration contracts should be limited to those relevant over the duration of the contract. Gautier et al. (2022) show that the typical duration of collective wage agreements is one year and wages are also updated on average once a year. So, the relevant expectations for wage growth should be recent and future inflation within that 12-month period. Longer run expectations should not matter since firms will have the opportunity to reset wages before that longer time horizon materializes. Figure 5 suggests that, at least visually, this pattern is present among wage setters.

To assess the passthrough of inflation expectations to wage expectations, Table 3 reports the results of Huber regressions linking own-wage expectations to inflation perceptions and expectations:

$$E_t^i \Delta w_{t+12}^i = a + bE_t^i \pi_t + cE_t^i \pi_{t+12} + dE_t^i \pi_{LT} + \theta X^i + \varphi_t + error_{i,t}$$

where $E_t^i \Delta w_{t+12}^i$ is the expected own wage growth, $E_t^i \pi_t$, $E_t^i \pi_{t+12}$, $E_t^i \pi_{LT}$, are respectively inflation perceptions, 1-year expectations and 3 to 5 year expectations, we also include controls X^i for sector, size, region and φ_t time fixed effects (year fixed effects or date fixed effects). When we do not include any time fixed effects, the impact of inflation perceptions on wage expectations is 0.19 pp whereas the impact of 1-year inflation expectation is 0.08 pp (column 1); both impacts are significant whereas the impact of long-term inflation expectations is negative, small and barely significant. When we include time fixed effects, the elasticities are lower but still significant for inflation perceptions and 1-year expectations (columns 2 and 3). These estimates are broadly in line with the low passthrough estimates obtained in other countries in Europe (Abberger et al. 2024, Baumann et al. 2024 and Buchheim et al. 2024), where the reported estimates range between 0.1 and 0.3. One original finding compared to this recent literature is that inflation perceptions seem to matter as much as or more than inflation expectations. The stronger impact of inflation perceptions relative to 1-year inflation expectations could be related to the fact that during the inflation surge, wage decisions were partly motivated by catching up with recent losses in purchasing power. The importance of perceived inflation for wage growth expectations is also consistent with some degree of backward-lookingness in wage setting decisions (in line with the formal indexation of the national minimum wage in France, see also Gautier et al. (2022) for more evidence on French wage setting).[8] We also find that this elasticity is quite heterogeneous across firms: it is much

[8] This is also consistent with evidence provided by Buccheim et al. (2024) on German firm-level data where realized aggregate inflation over the past 12 to 24 months matter for expected wage growth at the firm level.

stronger for larger firms and weaker for firms in the construction sector (columns (4) and (5) of Table 3).

In Table 4, we investigate whether the pass-through is stronger for firms which are more attentive to inflation than others (columns (1) and (2)). To define the level of attention of firms to inflation, we compare their inflation perceptions with actual inflation (following Coibion et al. 2018). If the difference between these two variables is lower than a given threshold, we consider that a firm is attentive to inflation, and we interact perceptions and expectations with this dummy variable in our baseline regression. We use two thresholds of 2 percentage points and 1 percentage point. Regardless of the threshold, we find that the pass-through of perceptions and expectations to wage growth is significantly stronger for more attentive firms: the estimated coefficients for both perceptions and 1-year expectations double when firms are more attentive to inflation.

4.3 How did the high-inflation period affect the pass-through of expectations into wage growth?

Table 4 also document results where we interact inflation perceptions and expectations with a dummy variable equal to 1 if actual CPI inflation in France is higher than 3% (column (3)) or higher than 4% (column (4)).[9] We can observe a clear fall in the coefficient linking perceived and expected inflation and wage expectations when inflation is larger than 3 or 4%.[10] In Appendix Table 2, we document passthrough estimates by year and we find a similar results, coefficients fall in 2022 and 2023 when inflation was higher than usual. These findings show that inflation expectations do not seem to matter more when inflation is high (contrary to what Jorda and Necchio, 2023 found from wage Phillips curves estimated on US data).

[9] In France, CPI inflation is larger than 3% between 2022 Q1 and 2023 Q4 (reaching maximum at about 6% in 2023 Q1); CPI inflation is larger than 4% between 2022 Q2 and 2023 Q3 (see also Figure 1 for details).
[10] We obtain a very similar result when linking wage expectations revisions to inflation expectation revision (see Appendix Table 3).

However, as shown earlier, the dispersion in inflation expectations was high during the inflation surge, and we want to assess whether this lower passthrough might come from the small share of firms expecting a very high inflation rate. We define a threshold at 10% (i.e. the 5th percentile of 1-year inflation expectations) and we interact in our baseline regression the inflation variables with a dummy for 1-year inflation expectation (or long-term inflation expectation) lower than 10%. Results are reported in Table 4 columns (5) and (6). We find much larger passthrough coefficients for firms expecting inflation lower than 10%. This suggests that inflation expectations matter less for wage decisions when they are far from being anchored. Their influence on wage setting seems to be much more pronounced when they are located in a more realistic range of values. Most of answers exceeding 10% are reported during the high inflation period (when actual inflation ranged between 4 and 6%). We run the same regression as in columns (3) and (4) interacting inflation perceptions and expectations with a "high inflation" dummy but excluding inflation expectations larger than 10% (Table 4 column (7)): we no longer find any difference in estimated coefficients in high or low inflation environments and the passthrough coefficients are stronger (in both low and high inflation environments). This suggests that the smaller passthrough during the high-inflation regime was driven by the subset of firms who expected very high inflation but did not expect to adjust their wages in response to this belief.

5. How Do Inflation and Wage Expectations Affect Firms' Decisions on Prices, Employment and Output?

To assess how expectations affected decisions both before and during the high inflation period, we exploit the fact that the survey includes questions on firms' expected and past decisions. For example, every month, firms are asked about whether they expect to change their prices in the

next month. Their answers are qualitative, with the ability to select "increase prices," "decrease prices," or "no change." They are also asked a similar qualitative question about whether they have raised their prices in the previous month. Hence, the survey allows us to measure, at least qualitatively, firms' expected and actual price changes over time. The survey also includes similar questions about employment and production, thereby also allowing us to measure these additional decisions on the part of firms.

We plot these qualitative measures of prices, employment and output in Figure 6 - Panel A, which focuses on price changes, shows the fraction of firms reporting that they expect to raise prices in the next month as well as the fraction of firms expecting to cut prices. The latter tends to be small, less than 5% in any given month. The share of firms expecting to raise prices, however, changes significantly over time, rising to over 40% at the peak of the inflation spike. The figure also plots whether firms in the next month also report having changed prices, and we see that the two series move very closely together. The figure illustrates that, as the inflation rate spiked, there was a significant change in the extensive margin of price adjustment.

In Panels B and C, we plot equivalent figures for employment and output changes. Consistent with the absence of large changes in aggregate employment or output during the inflation surge, we do not see any systematic changes in firms reporting that they expected to change production of employment over these periods. Production expectations are particularly choppy, due to seasonal production patterns, but looking past these does not show any particular changes during the sample.

5.1 Inflation expectations and firms' decisions

To assess the effect of inflation expectations on decisions, we estimate local projections for the cumulative change in outcomes as follows:

$$\sum_{h=0}^{H} \Delta x^{i}_{t+h,t+h-1} = \alpha + \delta_h E^{i}_{t} \pi_{t+12} + \omega E^{i}_{t} \pi_{t} + \gamma_t + \upsilon_i + error_{i,t}$$

where $\Delta x^{i}_{t+h,t+h-1}$ is the reported change in outcomes (e.g. change in prices) or the expected change in decisions (e.g. expected in prices) of firm *i* between time *t+h* and *t+h-1*, where Δx is set to one when firms report an increase, zero for no change and minus one for a decrease. Note that the regression controls for each firm's perceived level of inflation $E^{i}_{t}\pi_{t}$ at time *t* as well as firm fixed effects υ_{i} and time fixed effects γ_{t}. The parameter of interest for us is δ_{h}, which captures how an increase in inflation expectations of firm *i* translates into their subsequent expected or actual decisions at horizon *h*. We consider horizons up to 12 months.

In Figure 7 (panel A), we plot impulse responses for expected prices, employment and output to inflation expectations.[11] We find that higher inflation expectations are followed by an increase in the cumulative number of times that firms report expecting to increase prices or having actually increased prices in subsequent months. Moreover, there tends to be an asymmetric effect on price decreases, which respond much less than price increases (Figure 6 in Appendix). We also find that higher inflation expectations are followed by reductions in employment, which are most sharply identified when using ex-post employment changes. With production, there is no clear response to inflation expectations on average during the sample. Overall, this suggests that higher expected inflation is associated on average with higher prices and lower employment, as if firms react to a supply shock.[12]

5.2 Wage expectations and firms' decisions

We similarly assess the pass-through of expected wage changes in the firm into prices, employment and production using the same specification as before, but with wage expectations in place of price expectations:

[11] Appendix Figure 7 plots the same estimation results but using past prices, employment and production as endogenous variables.

[12] Appendix Figures 8 and 9 show that long-term inflation expectations have a much lower (and most of the time insignificant) effect on prices, employment or output of firms. Perceived inflation has a rather small effect on prices but a much more negative effect on employment and output.

$$\sum_{h=0}^{H} \Delta x_{t+h,t+h-1}^{i} = \alpha + \delta E_t^i \Delta w_{t+12}^{i} + \omega E_t^i \pi_t + \gamma_t + \upsilon_i + error_{i,t}$$

As we show in Figure 7 (panel B), on average over the sample, an increase in expected wages is followed by a sharp increase in expected price changes on the part of the firm. Higher expected wages are also followed by sharp increases in employment and production. This suggests that much of the variation in firms' own-wage expectations reflects expected changes in demand for their products, which leads them to increase their employment and the wages paid to their workers. The implied pass-through of wage expectations into prices is significantly larger than the pass-through of aggregate inflation.

We investigate whether this pass-through is stronger when firms are more attentive to inflation following the same approach as the one used when we link inflation perceptions and expectations to wage growth (in Section 4.2). Figure 8 plots the results: when firms' inflation perceptions are closer to the actual inflation rate, the pass-through of wage expectations into their decisions is much stronger than when they are uninformed about current inflation. This is true not just for the pass-through of their wage expectations into prices but also for their wage expectations into employment and output decisions.

5.3 Results in a High vs Low Inflation Environment

Because our interest is in assessing whether these effects vary with the level of inflation, we split the sample into two periods: one when inflation is rather low (below 4%) and another one when inflation is relatively high (larger than 4%). We then estimate each regression separately on the two samples. We plot the impulse responses for each outcome (prices, employment and production) and each period in Figure 9 (panel A): we find a stark difference in the firms' responses across the two regimes. With prices, the positive response to expected inflation is much larger in the low-inflation period, indicating that the pass-through of expected inflation into prices is weaker when inflation is larger. This finding of a lower passthrough during the

high inflation period is similar as the one found when we link wage and inflation expectations. This is true regardless of whether we measure price outcomes through expected price changes or through ex-post actual price changes.

As with inflation expectations, we find a sharp reduction in the amount of passthrough of wage expectations into prices during the high-inflation period (Figure 9 - panel B). The same pattern holds with employment, with the much weaker responses of employment following increases in expected wages during the high-inflation period. Despite the latter, our interpretation is that wage and price inflation expectations seem to have had much smaller passthrough into decision-making during the high-inflation era than in the past. This suggests that, even as these expectations spiked, their effect on actual outcomes was mitigated.

We investigate whether the very large inflation expectations are behind this weakening of the passthrough. Figure 10 plots results of estimations where we split the sample between those firms reporting inflation expectations higher than 10% (i.e. expecting an "inflation disaster") and those firms expecting inflation to be lower than 10%. We find that the passthroughs of inflation and wage expectations are stronger for firms expecting inflation to remain below 10%. This in particular true for the passthrough of inflation expectations into prices or wage expectations into employment. When we remove inflation expectations larger than 10%, the differences in the passthrough in the low and high inflation regimes are smaller (Appendix Figure 10). In particular, the price responses look almost the same across low and high inflation periods, and the passthrough of wage expectations into prices and employment is also closer for both regimes. Again, this suggests that the weaker passthrough in the high inflation regime is driven by a small share of firms expecting an inflation disaster (i.e. inflation expectation much larger than the actual inflation), but for other firms the link is more or less the same in a high or low inflation environment.

6. Conclusion

The recent inflation surge led to renewed consideration of the dynamics and role of firms' expectations. Using a new survey of French firms, we find that their inflation expectations under-responded to the initial surge but then systematically and persistently over-reacted. Firms initially perceived the surge as more transitory than typical inflation fluctuations but revised this belief over time. While their wage expectations also increased during this period, they did not overshoot actual wage changes and became less tightly connected to firms' inflation expectations. And while both forms of expectations typically are followed by firms being more likely to increase their prices, we show that this passthrough weakened during the inflation surge. This suggests that expectational forces likely played less of a role in explaining inflation dynamics than one might have expected from prior evidence.

These results speak to the extent to which policymakers have to worry about anchoring expectations during this type of episode. The common wisdom is that expectations can potentially become unanchored during inflation spikes, which could tend to generate wage-price spirals. Our results suggest that these forces may not be too powerful. First, we find a growing disconnect between firms' expectations about aggregate inflation (which rose sharply) and their expectations about their own-wage growth (which was much more muted). Thus, even though firms' inflation expectations over-responded and did not appear anchored, this did not translate into a commensurate change in expectations about wages in their firms. Second, the passthrough of expectations into prices and employment appears to have weakened significantly during the inflation surge. As a result, the sharp rise in inflation expectations and the more limited increase in own-wage expectations likely did not lead to as much upward pressure on inflation as one might have expected from earlier periods, thereby limiting the scope for any wage-price spiral dynamics.

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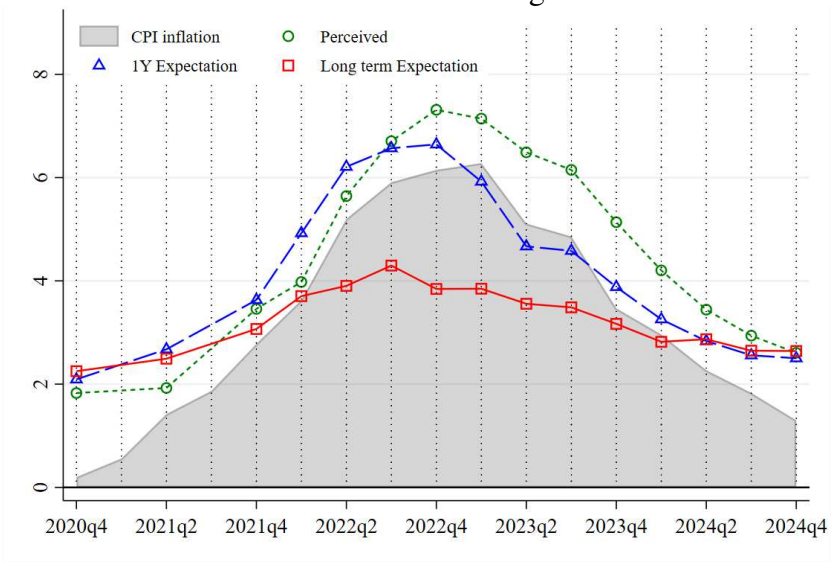
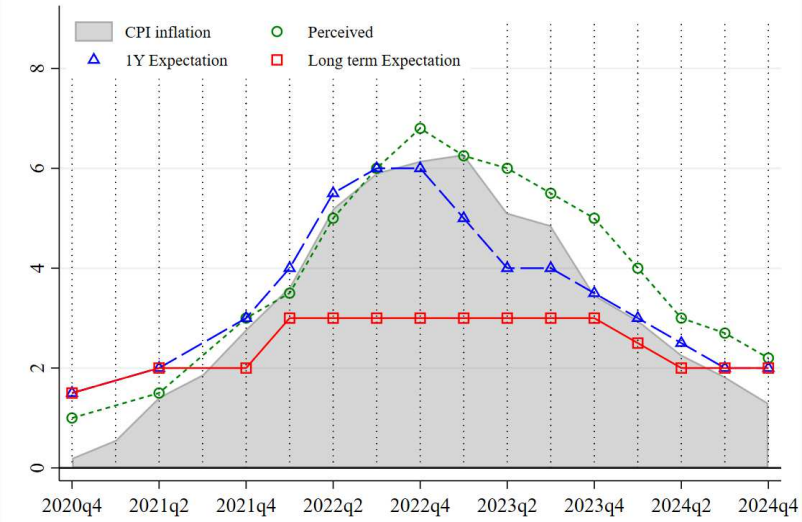
Figure 1 – Firms inflation expectations over time

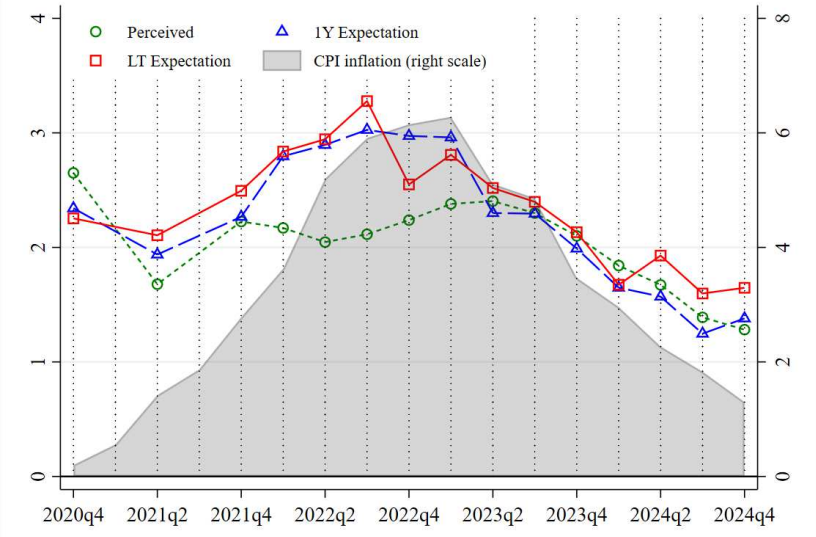
Panel A - Average



Panel B - Median

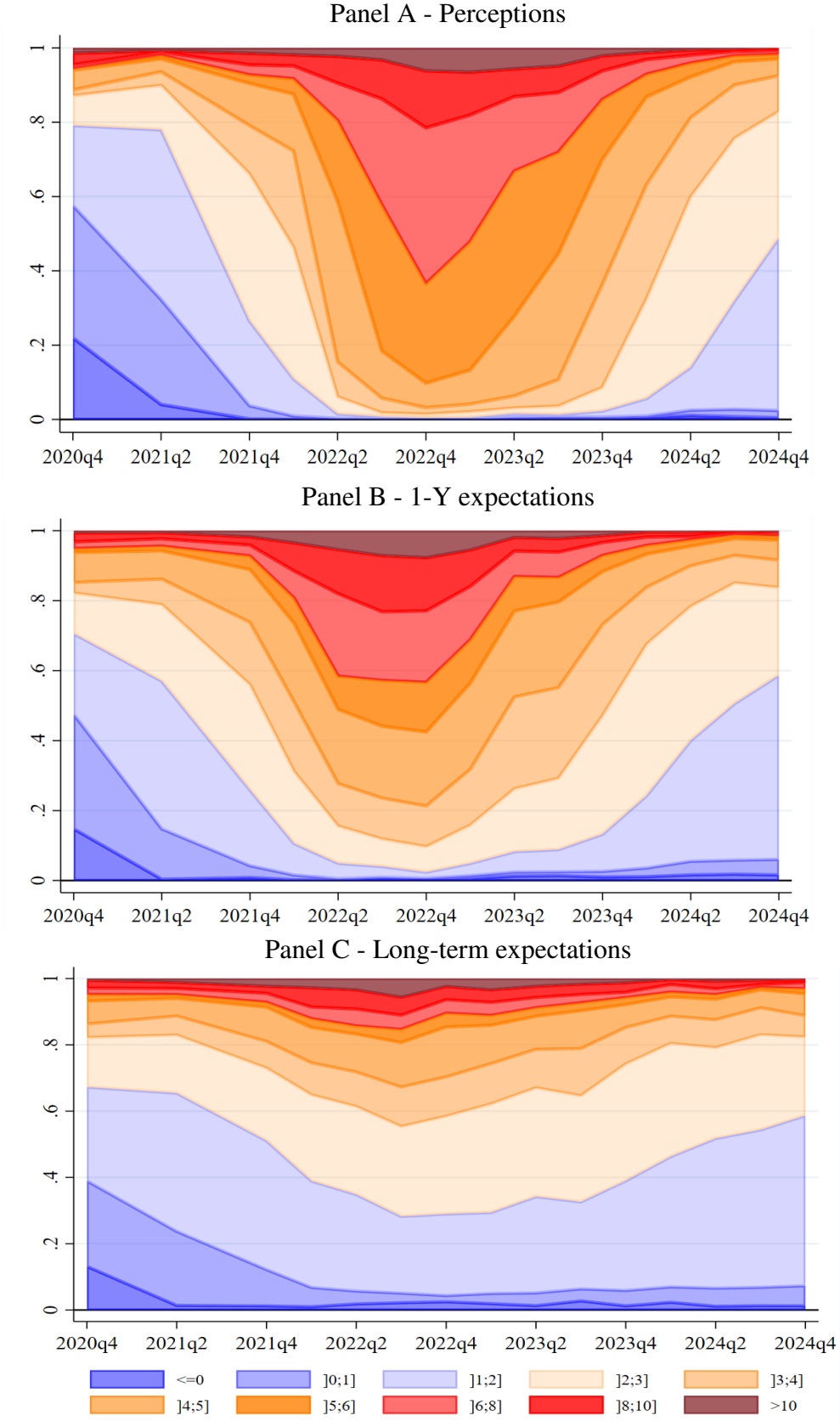


Panel C - Standard deviation



Note: the figures plot unweighted average, median and standard deviation calculated at each wave of the inflation expectation survey using answers below 20%.

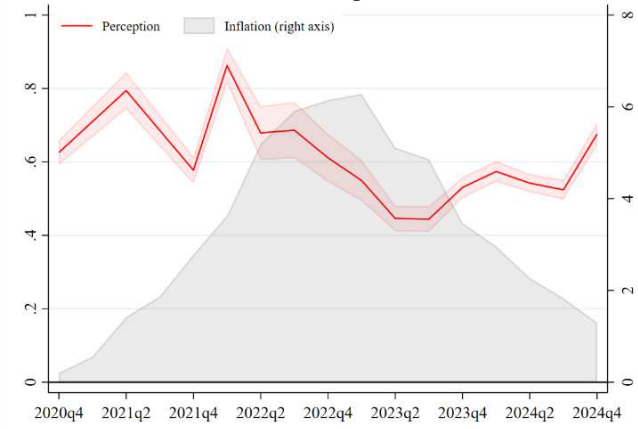
Figure 2 – Distribution of firms' inflation expectations over time



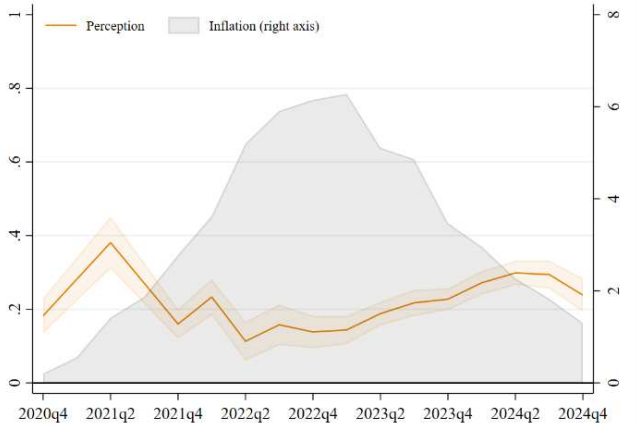
Note: the figures report the proportion of answers in each bin calculated for each wave of the inflation expectation survey using answers below 20%.

Figure 3 – Perceived Persistence of Inflation

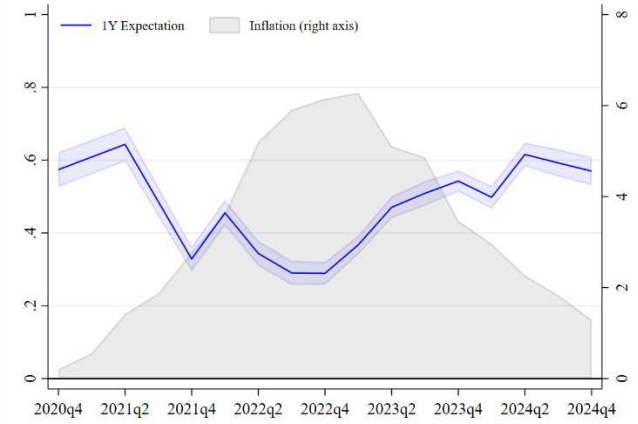
Panel A - Past inflation on 1Y expected inflation



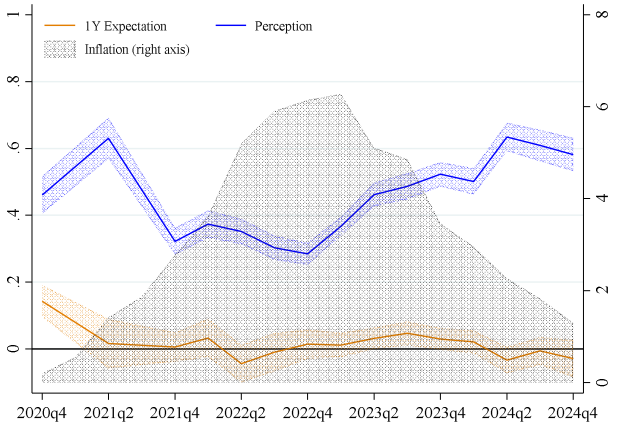
Panel B - Past inflation on LT expected inflation



Panel C - 1Y expectation on LT expectations



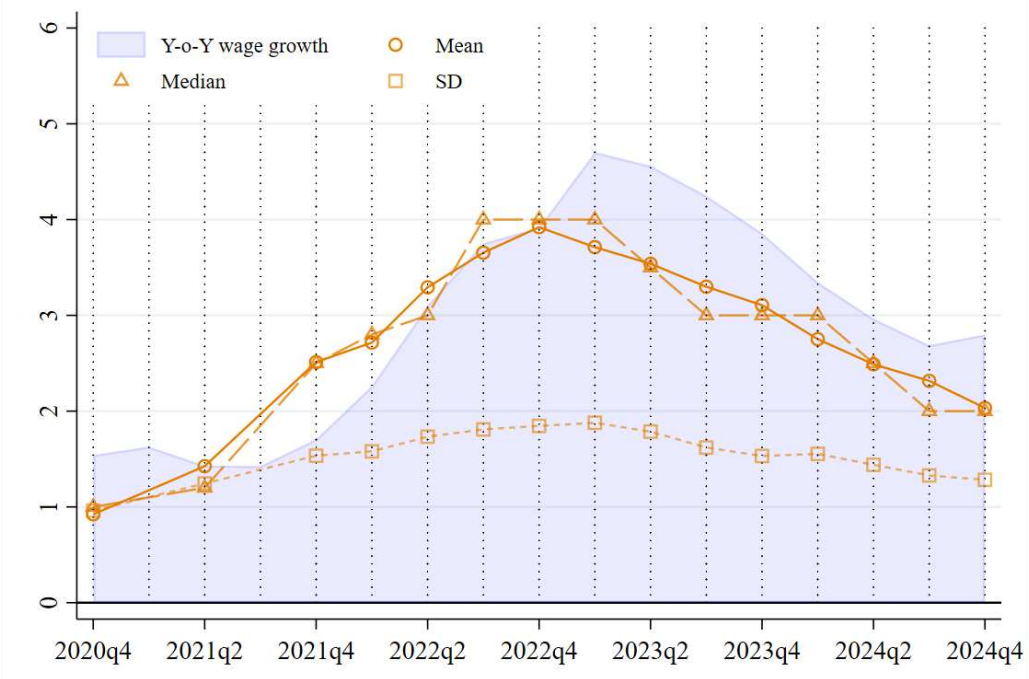
Panel D - Past inflation and 1Y expectation on LT expectations



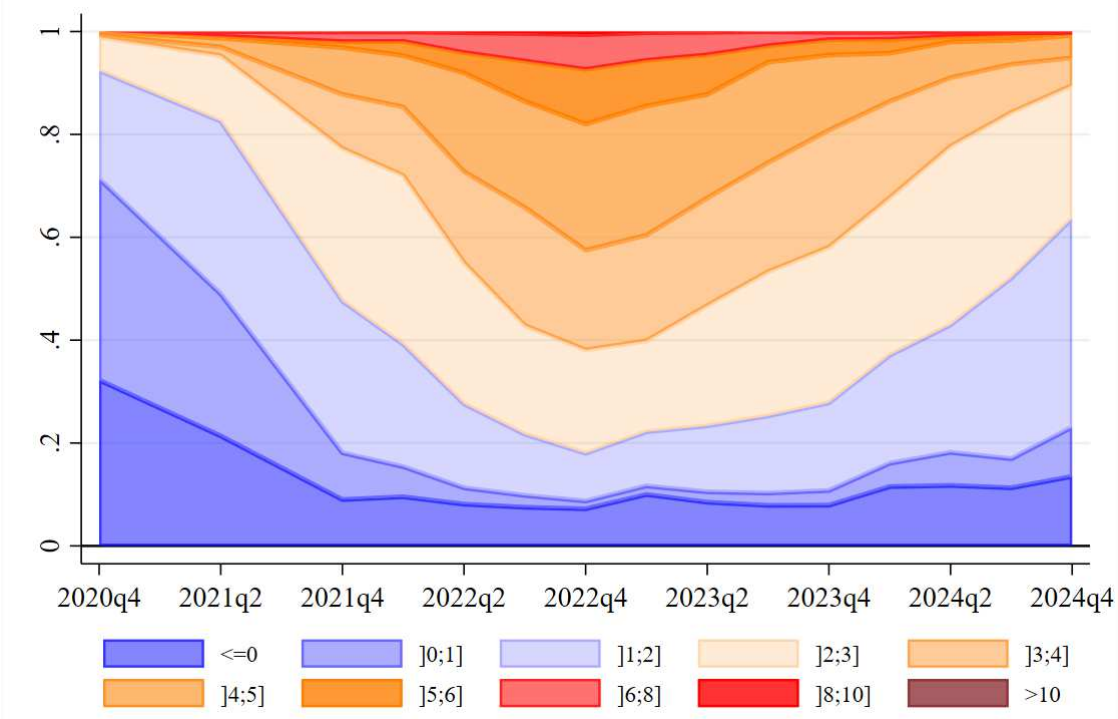
Note: these figure report Huber regression estimates of the coefficients interacted with survey waves; region, sector, size, learning and time fixed effects are included in the OLS regressions.

Figure 4 – Firms' wage growth expectations over time

Panel A - average – median – standard deviation



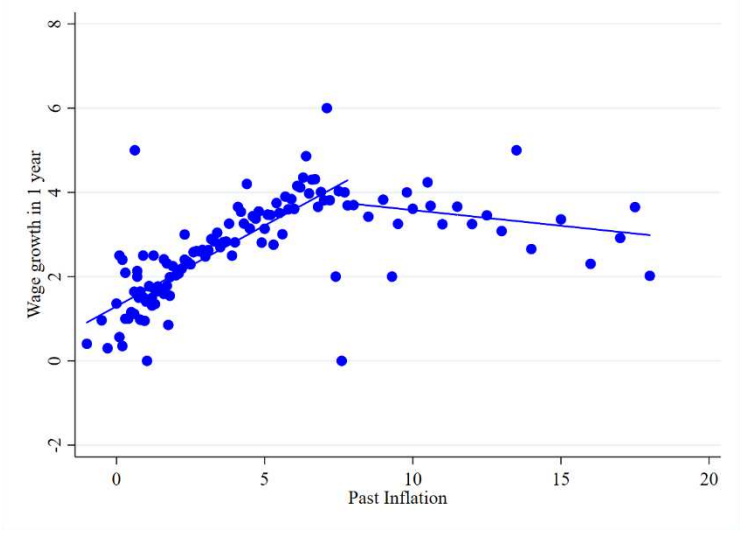
Panel B - distribution over time



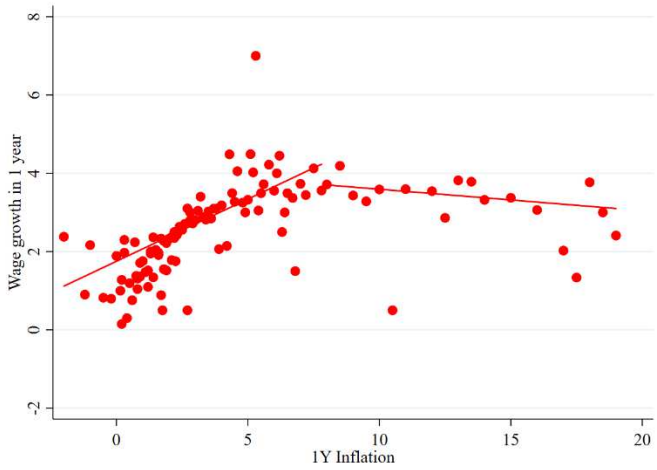
Note: the figures report the proportion of answers in each bin calculated for each wave of the inflation expectation survey using answers below 10%.

Figure 5 – Price and Wage Inflation Correlations

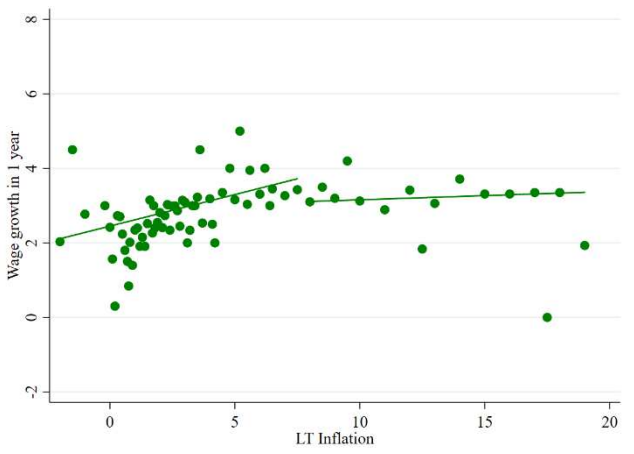
Panel A – Past inflation and own-wages



Panel B – 1 Y expectations and own-wages



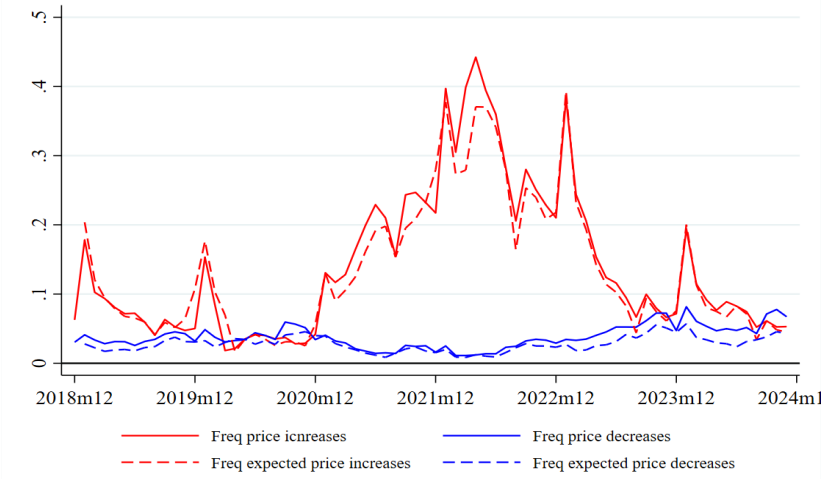
Panel C - LT expectations and own-wages



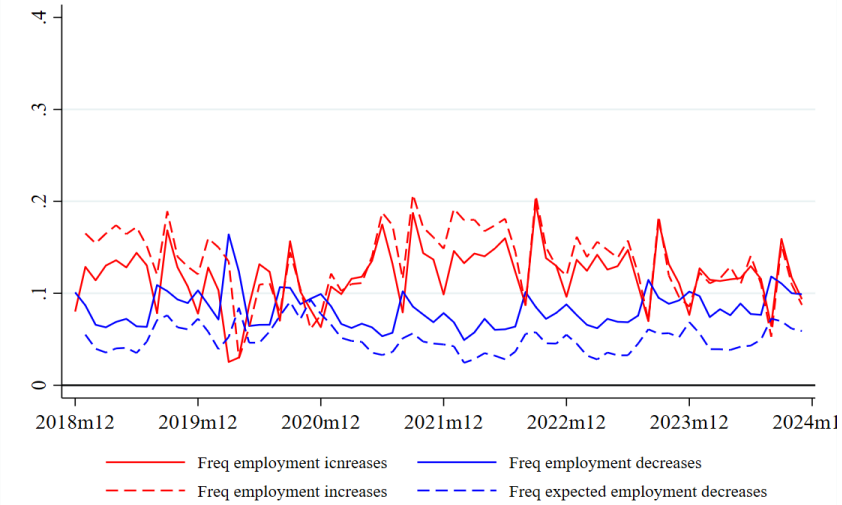
Note: the figures plot binned scatter plots, lines plot the fitted Huber regressions for observations below and above a threshold of 7%.

Figure 6 – Expectations and Realizations of Price, Employment and Output Changes

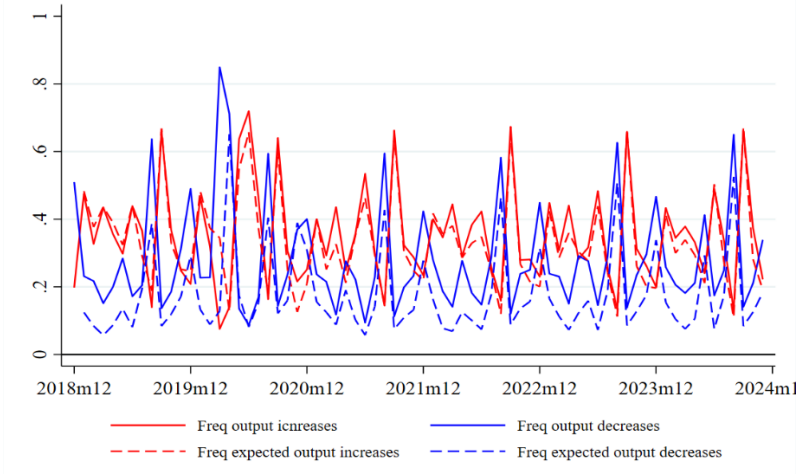
Panel A - Anticipated and Actual Price Changes



Panel B - Anticipated and Actual Employment Changes



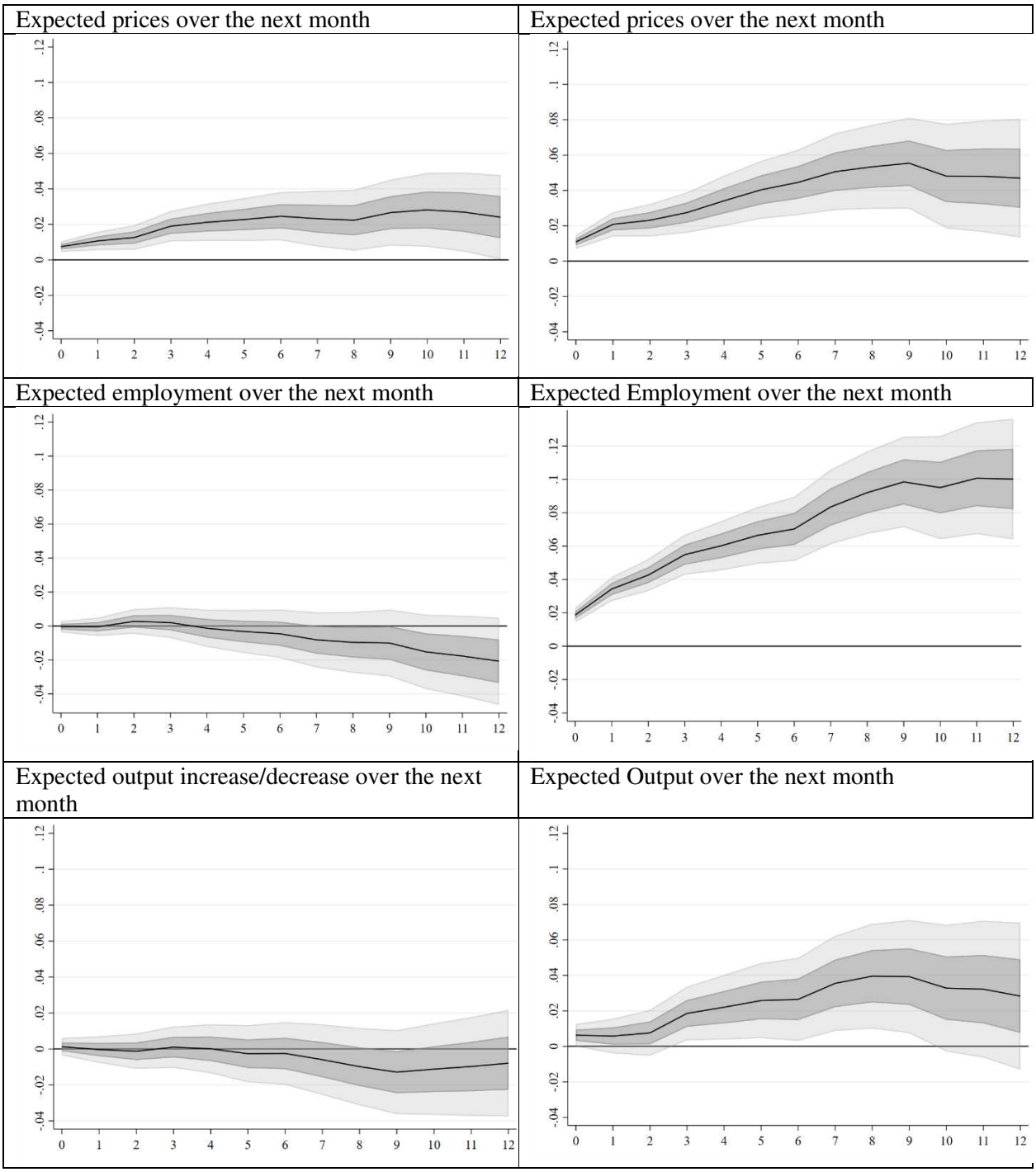
Panel C - Anticipated and Actual Output Changes



Note: the figures plot the share of answers reporting an increase (in red) or a decrease (in blue) for expected variables (dashed lines – with a one month lead) and actual decisions (solid lines – contemporaneous)

Figure 7: The Average Effect of 1-Year Inflation and Wage Growth Expectations on Future Prices, Employment and Output

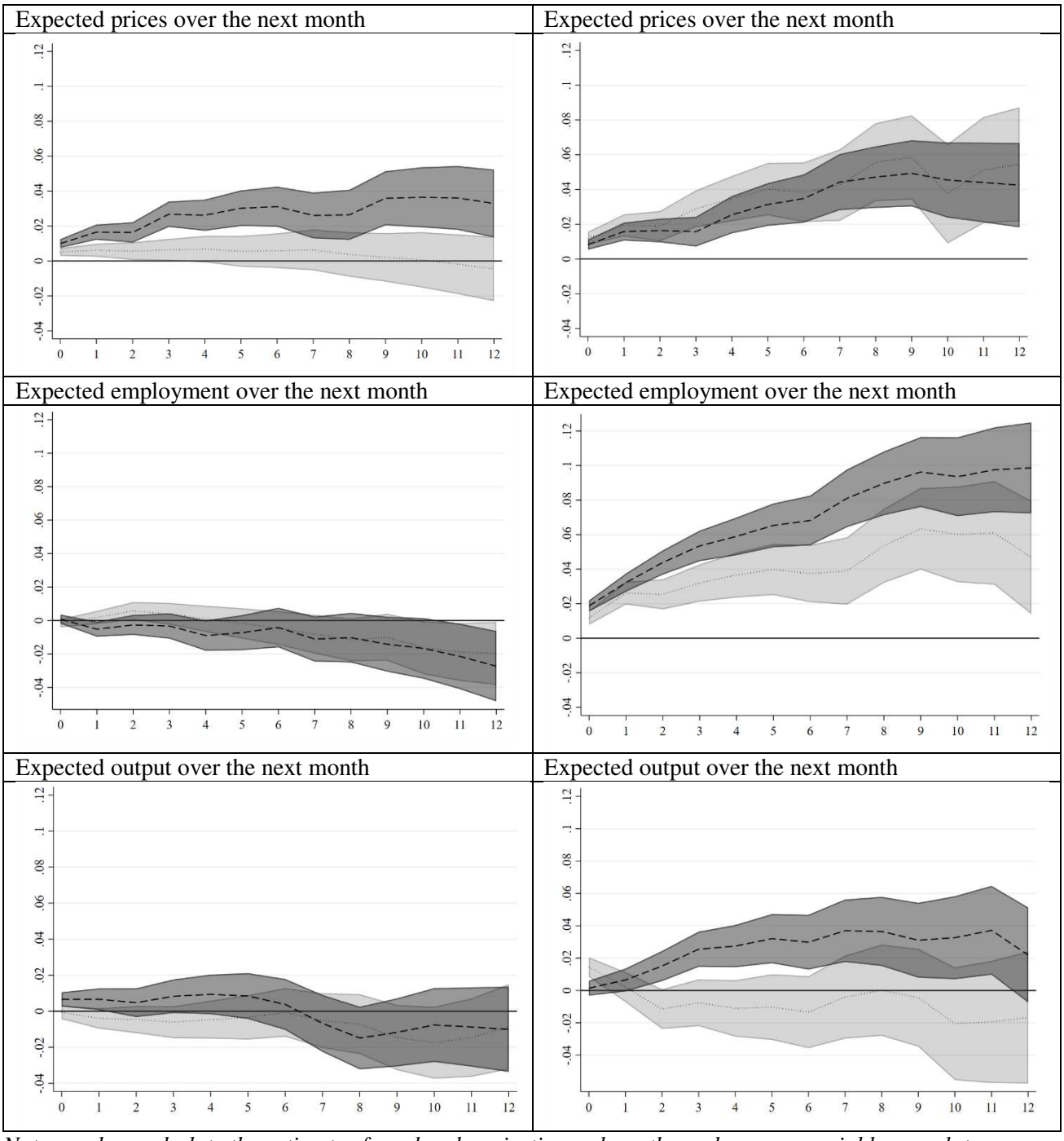
a) ***1Y Inflation expectations*** ***b) Own-Wage 1Y expectation***



Note: each panel plots the estimates from local projections where the endogenous variable cumulates an ordered qualitative variable for price increase/stable prices/price decrease (taking values +1/0/-1) over horizon t+h (=1,…12) and the exogenous variable is the aggregate inflation and wage growth expectation at date t+0. Dotted lines correspond to the 95% confidence interval. Controls include perceived inflation, date, sector, region and size fixed effects.

Figure 8: Attention to Inflation - Average Effect of 1-Year Inflation and Wage Growth Expectations on Future Prices, Employment and Output –

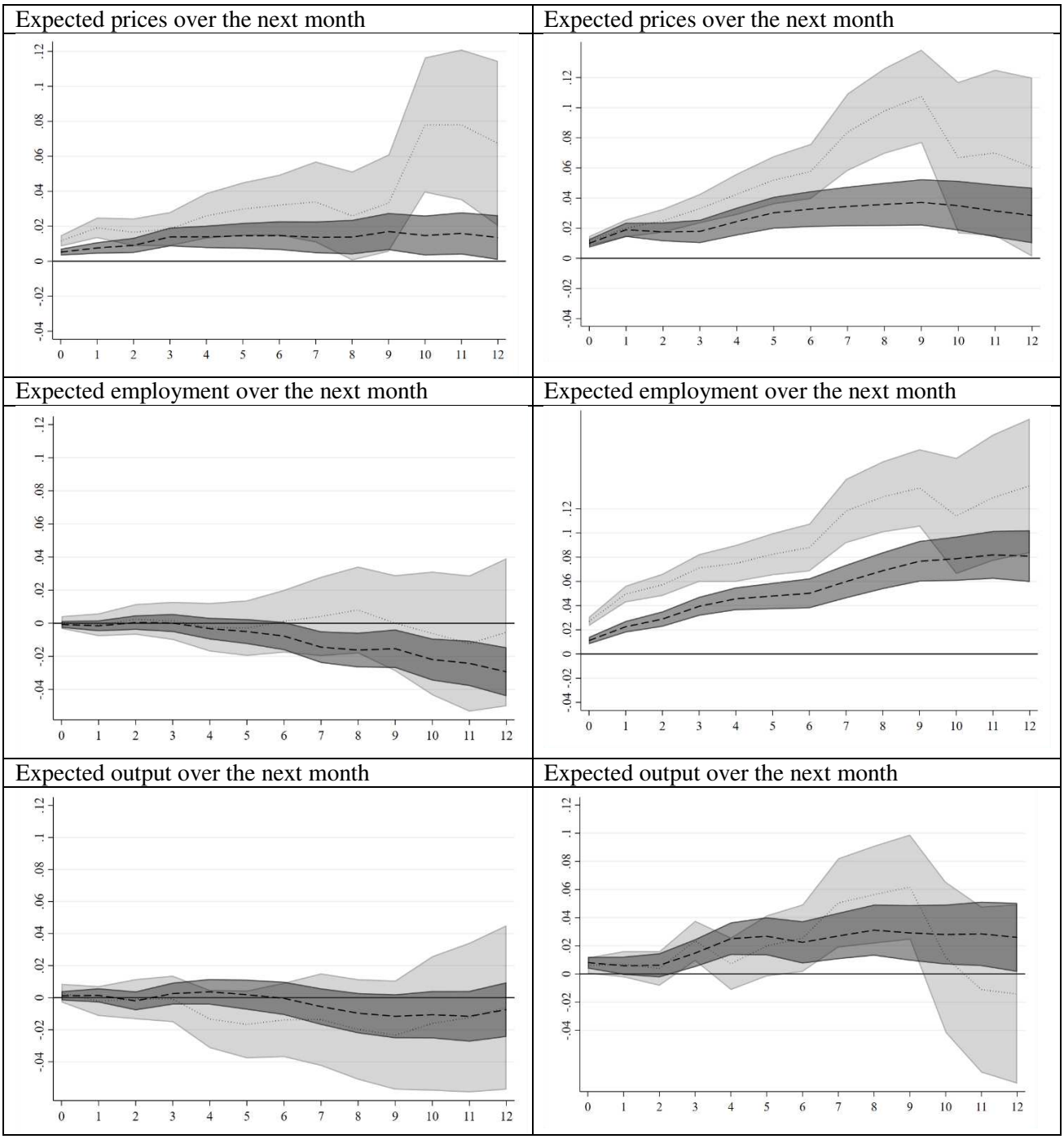
a) ***1Y Inflation expectations*** ***b) Own-Wage 1Y expectation***



Note: each panel plots the estimates from local projections where the endogenous variable cumulates an ordered qualitative variable for price increase/stable prices/price decrease (taking values +1/0/-1) over horizon t+h (=1,…12) and the exogenous variable is the aggregate inflation and wage growth expectation at date t+0. In each panel, the black solid line plots the impulse response estimated using the sample of respondents for which the difference between inflation perception and actual inflation at the date of the interview is lower than 1% in absolute value; the grey line plots the impulse response function estimated using answers of respondents for which the difference between perceived and actual inflation is larger than 1% in absolute values. Controls include perceived inflation, date, sector, region and size fixed effects.

Figure 9: The Average Effect of 1-Year Inflation and Wage Growth Expectations on Future Prices, Employment and Output – High Inflation

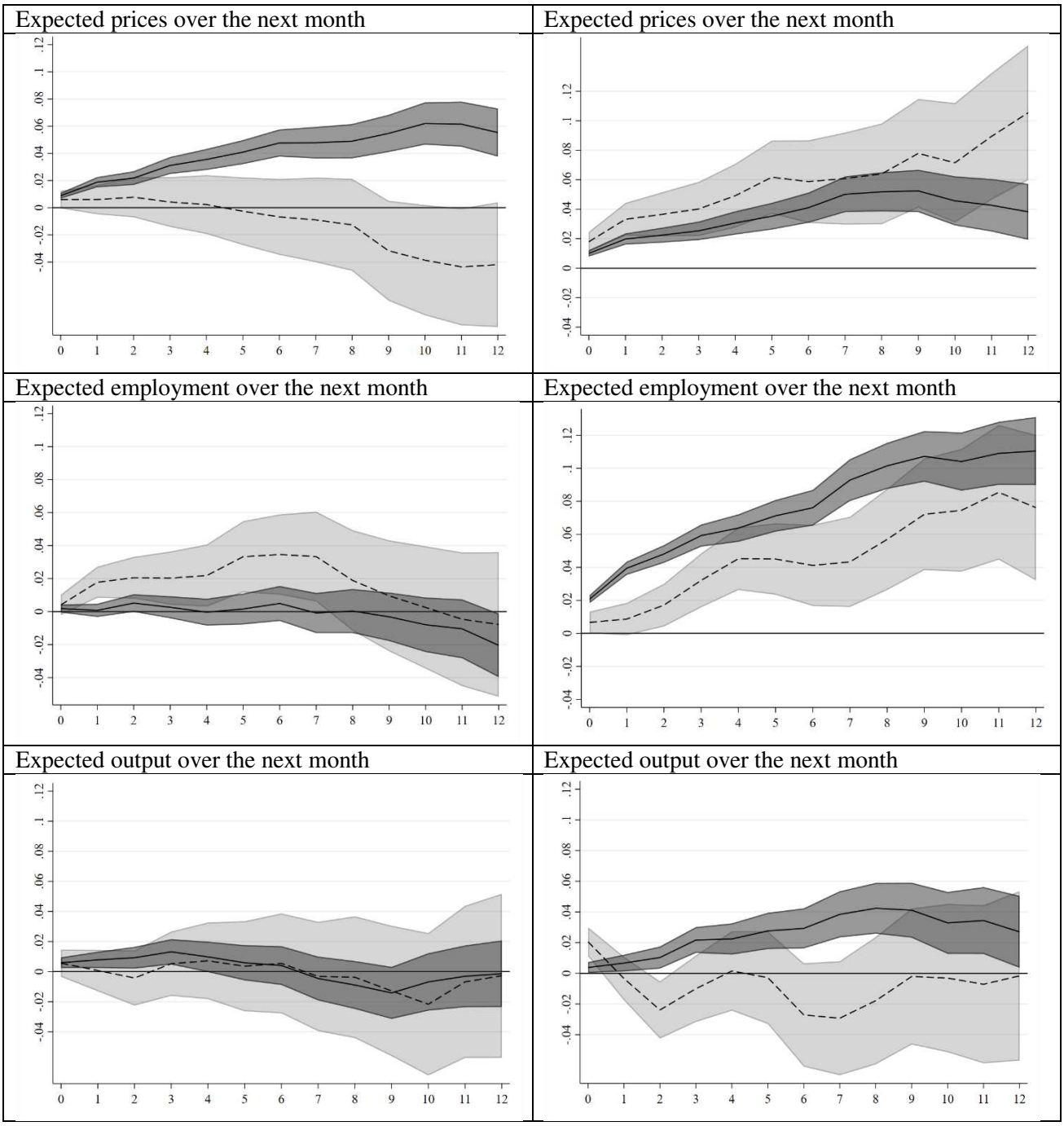
a) ***1Y Inflation expectations*** ***b) Own-Wage 1Y expectation***



Note: each panel plots the estimates from local projections where the endogenous variable cumulates an ordered qualitative variable for price increase/stable prices/price decrease (taking values +1/0/-1) over horizon t+h (=1,…12) and the exogenous variable is the aggregate inflation and wage growth expectation at date t+0. In each panel, the black solid line plots the impulse response estimated on the subsample of respondents reporting their inflation and wage expectations when CPI inflation was higher than 4%; the grey line corresponds to the impulse response function estimated on the subsample of respondents reporting their inflation and wage expectations when CPI inflation was below 4% . Controls include perceived inflation, date, sector, region and size fixed effects.

Figure 10: Expected Inflation Disaster - the Average Effect of 1-Year Inflation and Wage Growth Expectations on Future Prices, Employment and Output

b) ***1Y Inflation expectations*** ***b) Own-Wage 1Y expectation***



Note: each panel plots the estimates from local projections where the endogenous variable cumulates an ordered qualitative variable for price increase/stable prices/price decrease (taking values +1/0/-1) over horizon t+h (=1,…12) and the exogenous variable is the aggregate inflation and wage growth expectation at date t+0. In each panel, the black solid line plots the impulse response estimated on the subsample of respondents expecting inflation one-year ahead to be lower than 10% ; the grey line solid line plots the impulse response estimated on the subsample of respondents expecting inflation one-year ahead to be higher than or equal to 10% ("inflation disaster"). Controls include perceived inflation, date, sector, region and size fixed effects.

Table 1: Survey Participants

	Total	Construction	Industry	Services
# answers				
Size				
Less than 50 employees	10,073	2,474	2,657	4,942
50-250 employees	7,445	849	4,517	2,079
More than 250 employees	3,569	182	2,688	699
Year				
2020	727	96	342	289
2021	2,175	339	1,024	812
2022	6,071	998	2,830	2,243
2023	6,141	1,034	2,876	2,231
2024	6,015	1,045	2,805	2,165
Total	21,129	3,505	9,862	7,720
# firms				
Size				
Less than 50 employees	3,935	949	1,013	1,945
50-250 employees	2,696	304	1,610	782
More than 250 employees	1,251	60	942	249
# of answers by firm				
1	1,335	237	506	592
2	1,715	244	744	727
3	3,379	595	1,591	1,193
>3	1,474	239	732	503
Total	7,903	1,315	3,573	3,015

Note: Waves run in end 2020 and Q2 2021 cover only regions (see Savignac et al. 2023); between Q4 2021 and Q4 2024 all waves are national.

Table 2: Expectations and Firm Characteristics

Endogenous variable	Inflation			Wage growth
	Perception	1-y expectation	3-5y expectation	1-y expectation
Sector				
Construction	0.227***	0.284***	0.436***	-0.175***
	(0.050)	(0.058)	(0.071)	(0.039)
Manufacturing	0.024	-0.147***	-0.266***	-0.077***
	(0.034)	(0.040)	(0.045)	(0.029)
Services	Ref	Ref	Ref	Ref
Size				
Less than 50 empl.	Ref	Ref	Ref	Ref
50-250 empl.	-0.341***	-0.461***	-0.505***	0.205***
	(0.035)	(0.046)	(0.046)	(0.029)
>250 empl.	-0.454***	-0.675***	-0.731***	0.426***
	(0.041)	(0.046)	(0.051)	(0.033)
Waves				
"Learning effect"				
1	Ref	Ref	Ref	Ref
2	-0.157***	-0.182***	-0.193***	-0.039
	(0.055)	(0.063)	(0.073)	(0.046)
3	-0.096*	-0.177**	-0.280***	-0.079
	(0.058)	(0.065)	(0.077)	(0.049)
>3	-0.120	-0.184**	-0.233**	-0.036
	(0.082)	(0.093)	(0.107)	(0.073)
R2	0.421	0.309	0.087	0.162
Number observations	19,588	18,691	15,710	17,673

*Note: the table reports estimates of OLS regressions linking individual answers to the survey (inflation perception, expectations and wage growth expectations) to some characteristics of the firm (sector, size, number of times (annual frequency) this firm has responded to the survey. Time and region fixed effects are also included. Robust standard errors are reported in parenthesis. *** 1%, ** 5%, * 10%.*

Table 3: Impact of Inflation Perceptions/Expectations on Wage Growth Expectations

Wage Growth Expectation	(1)	(2)	(3)	Size (ref. <50 employees)	Sector (ref. Services)
Past inflation	0.190***	0.118***	0.054***	0.032***	0.074***
	(0.007)	(0.007)	(0.008)	(0.010)	(0.012)
1-y expectation	0.076***	0.051***	0.043***	0.045***	0.034**
	(0.007)	(0.008)	(0.008)	(0.010)	(0.019)
3-5-y expectation	-0.017**	-0.010	-0.001	-0.002	-0.011
	(0.007)	(0.007)	(0.006)	(0.009)	(0.021)
# 50-250 employees					
Past inflation				0.029**	
				(0.014)	
1-y expectation				0.006	
				(0.016)	
3-5-y expectation				0.005	
				(0.014)	
# >250 employees					
Past inflation				0.071***	
				(0.018)	
1-y expectation				-0.017	
				(0.021)	
3-5-y expectation				-0.004	
				(0.021)	
# Construction					
Past inflation					-0.037**
					(0.019)
1-y expectation					-0.011
					(0.021)
3-5-y expectation					0.021
					(0.017)
# Industry					
Past inflation					-0.023
					(0.014)
1-y expectation					0.021
					(0.016)
3-5-y expectation					0.016
					(0.015)
Year fixed effects	No	Yes	No	No	No
Date fixed effects	No	No	Yes	Yes	Yes
# obs.	13,892	13,892	13,892	13,892	13,892

*Note: the table reports estimates of Huber regressions linking answers to the wage growth expectation question to answers on perceived and expected inflation. In column (1), no time fixed effects are included, column (2) year effects are included, (3) date (quarter*year) are included. Columns (4) and (5) report results interacted by size and sector (including date fixed effects). Sector, Size, wave, and region fixed effects are also included. Robust standard errors are reported in parenthesis. *** 1%, ** 5%, * 10%.*

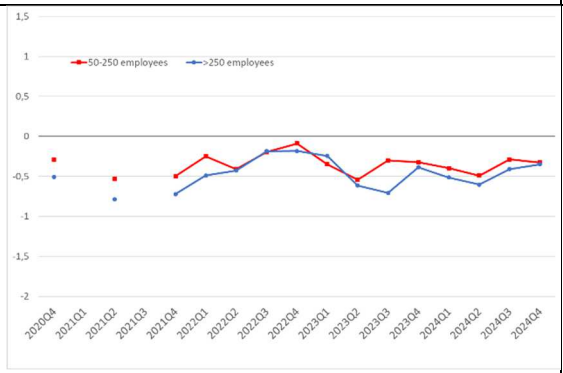
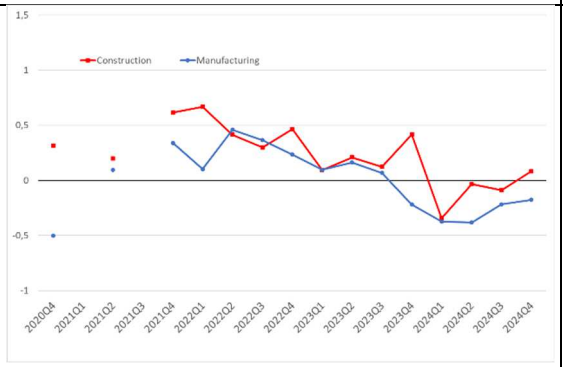
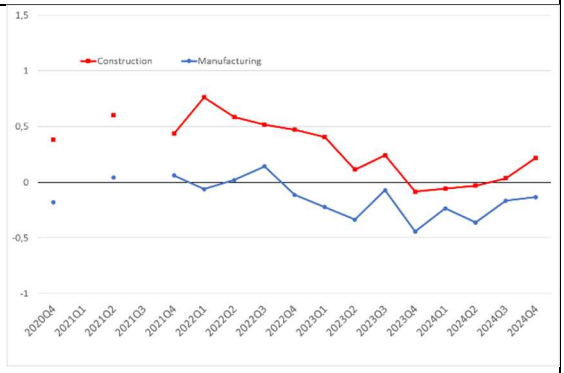
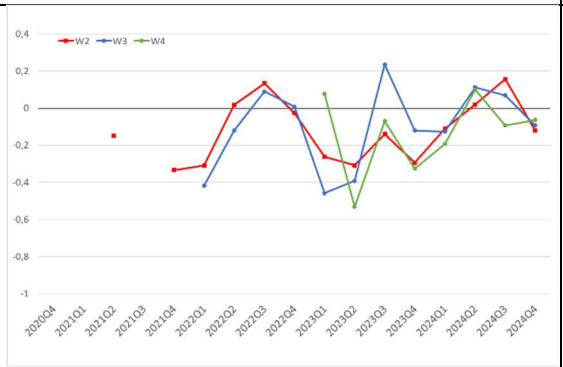
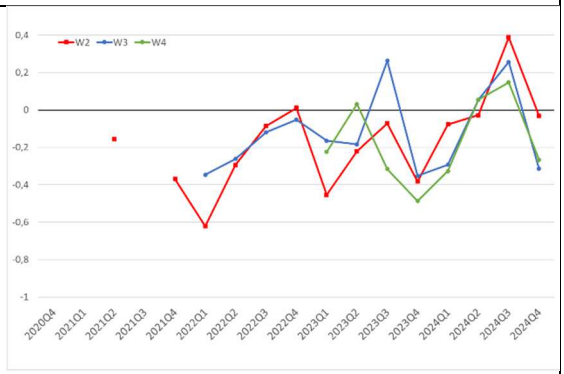
Table 4: Heterogeneity of the Impact of Inflation Perceptions/Expectations on Wage Growth Expectations

	Attention		High inflation		Expected inflation "disaster"		High inflation (excl. expected disaster)
	2%	1%	3%	4%	1-Y	Long run	4%
	(1)	(2)	(3)	(4)	(5)	(6)	(5)
Past inflation	0.062***	0.067***	0.051***	0.067***	0.063***	0.063***	0.075***
	(0.010)	(0.010)	(0.015)	(0.012)	(0.008)	(0.008)	(0.012)
1-y expectation	0.025**	0.026***	0.074**	0.052***	0.086***	0.053***	0.091***
	(0.017)	(0.017)	(0.017)	(0.013)	(0.010)	(0.008)	(0.015)
3-5-y expectation	-0.023**	-0.007	0.011	0.002	0.007	0.010	0.004
	(0.011)	(0.009)	(0.019)	(0.010)	(0.008)	(0.027)	(0.010)
# attentive to inflation							
Past inflation	0.089***	0.046***					
	(0.010)	(0.010)					
1-y expectation	0.026*	0.039***					
	(0.015)	(0.015)					
3-5-y expectation	0.033**	0.009					
	(0.013)	(0.013)					
# high inflation							
Past inflation			-0.001	-0.029*			-0.019
			(0.017)	(0.016)			(0.017)
1-y expectation			-0.037*	-0.013			-0.005
			(0.019)	(0.016)			(0.020)
3-5-y expectation			-0.019	-0.010			0.004
			(0.014)	(0.013)			(0.015)
# expectation ≥ 10%							
Past inflation					-0.077***	-0.116***	
					(0.019)	(0.022)	
1-y expectation					-0.130***	-0.086***	
					(0.028)	(0.021)	
3-5-y expectation					-0.042***	0.012	
					(0.014)	(0.027)	
Date fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
# obs.	13,892	13,892	13,892	13,892	13,892	13,892	13,019

*Note: the table reports estimates of Huber regressions linking answers to the wage growth expectation question to answers on perceived and expected inflation. In columns (1) and (2), the perceived and expected inflation answers are interacted with an "attention" dummy: this dummy is equal to 1 if the difference between perceived and actual inflation is lower than 1 or 2% in absolute values. In columns (3) and (4), the perceived and expected inflation answers are interacted with a "high inflation" dummy: this dummy is equal to 1 if CPI inflation is above 3 or 4%. In columns (5) and (6), the perceived and expected inflation answers are interacted with an "inflation disaster" dummy (equal to 1 if the expected inflation rate is larger than 10%). Column (7) same regression as in column (4) but excluding 1-year inflation expectations larger than 10%. Sector, Size, wave, and region fixed effects are also included. *** 1%, ** 5%, * 10%.*

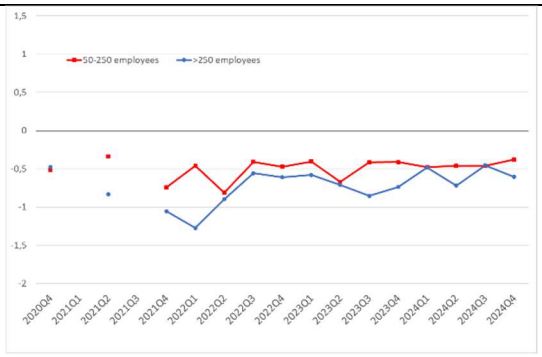
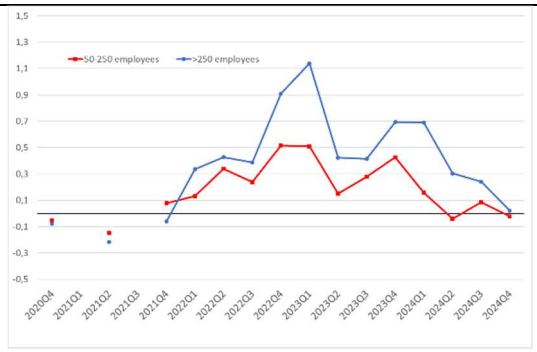
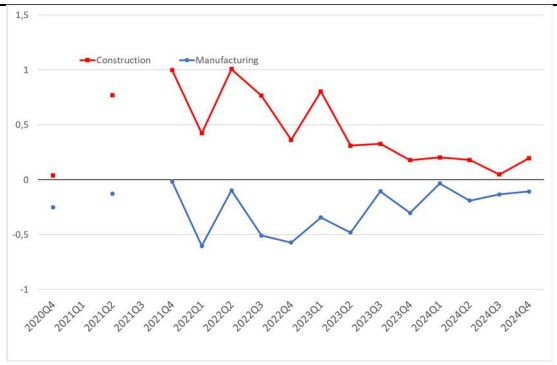
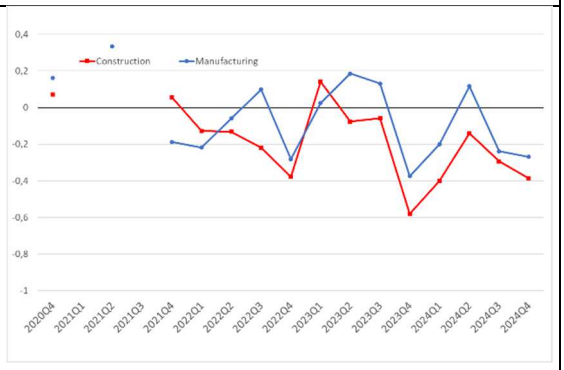
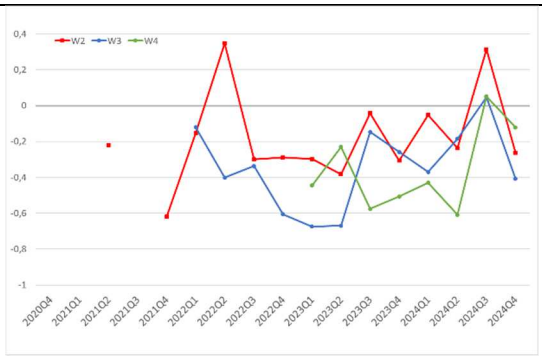
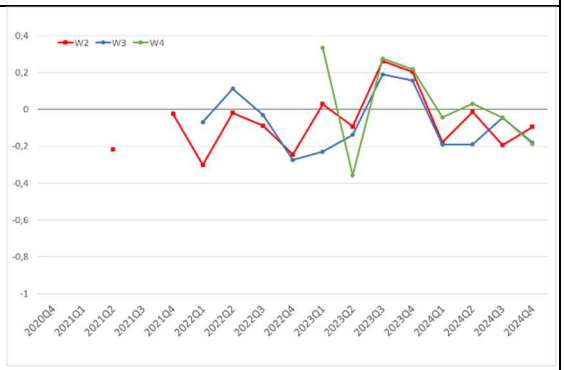
APPENDIX FIGURES AND TABLES

Appendix Figure 1: Expectations and Firm Characteristics – TIME SERIES

	Past inflation	Inflation in one year
Size **(REF <50 employees)**		
Sector **(REF Services)**		
Learning **(REF Wave 1)**		

*Note: the figures plot results of OLS regressions estimated date by date linking individual answers to the survey (inflation perception, expectations and wage growth expectations) to some characteristics of the firm (sector, size, number of times (annual frequency) this firm has responded to the survey. Time and region fixed effects are also included. Robust standard errors are reported in parenthesis. *** 1%, ** 5%, * 10%.*

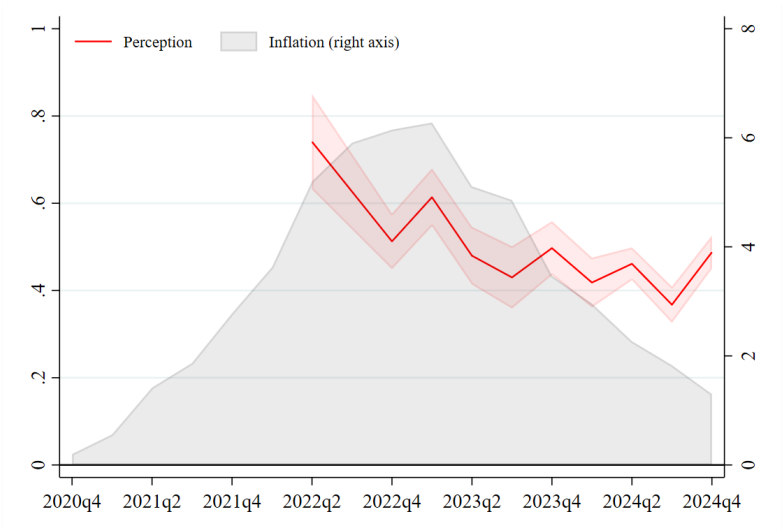
Appendix Figure 1 (continued): Expectations and Firm Characteristics – TIME SERIES

	Inflation in 3-5 years	Wage growth expectations
Size **(REF <50 employees)**		
Sector **(REF Services)**		
Learning **(REF Wave 1)**		

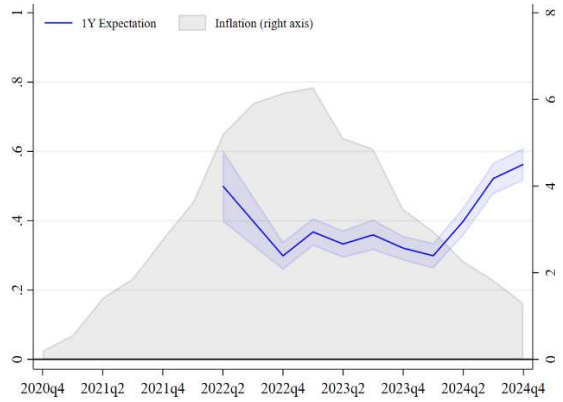
*Note: the figures plot results of OLS regressions estimated date by date linking individual answers to the survey (inflation perception, expectations and wage growth expectations) to some characteristics of the firm (sector, size, number of times (annual frequency) this firm has responded to the survey. Time and region fixed effects are also included. Robust standard errors are reported in parenthesis. *** 1%, ** 5%, * 10%.*

Appendix Figure 2: The impact of revisions in perceived and expected inflation on inflation expectations - OLS coefficients estimated by survey wave

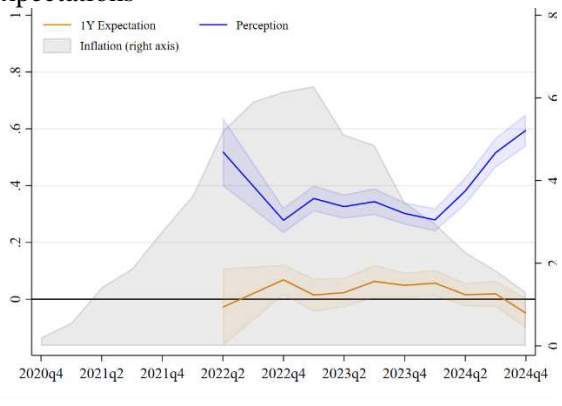
Past inflation on 1Y expected inflation



1Y expectation on LT expectations



Past inflation and 1Y expectation on LT expectations

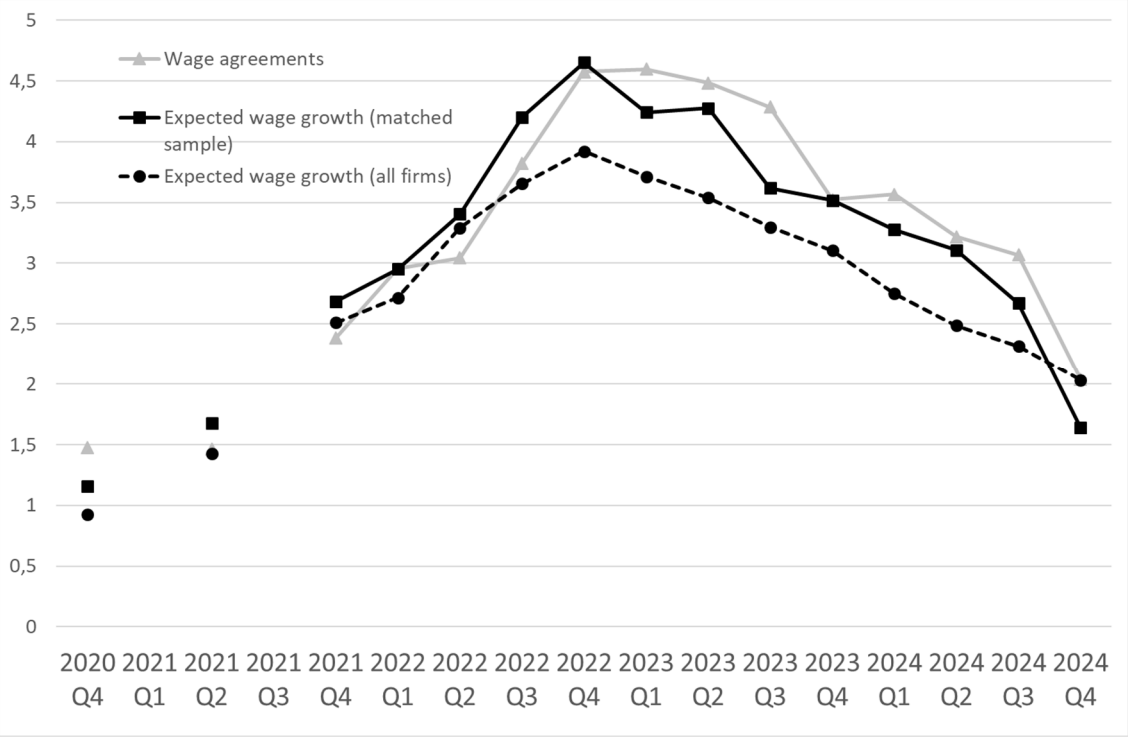


Note: these figure report Huber regression estimates of the coefficients interacted with survey waves; the endogenous variable is the revision of 1-year or long-term expectations calculated for every respondent answering the questionnaire at least twice, revisions are computed from one year to another. The exogenous variables are revisions in perceived and 1-year expected inflation calculated from one year to another. Region, sector, size, learning and time fixed effects are included. The dotted lines correspond to the 95% confidence interval.

Appendix – Wage expectations and firm-level wage agreements

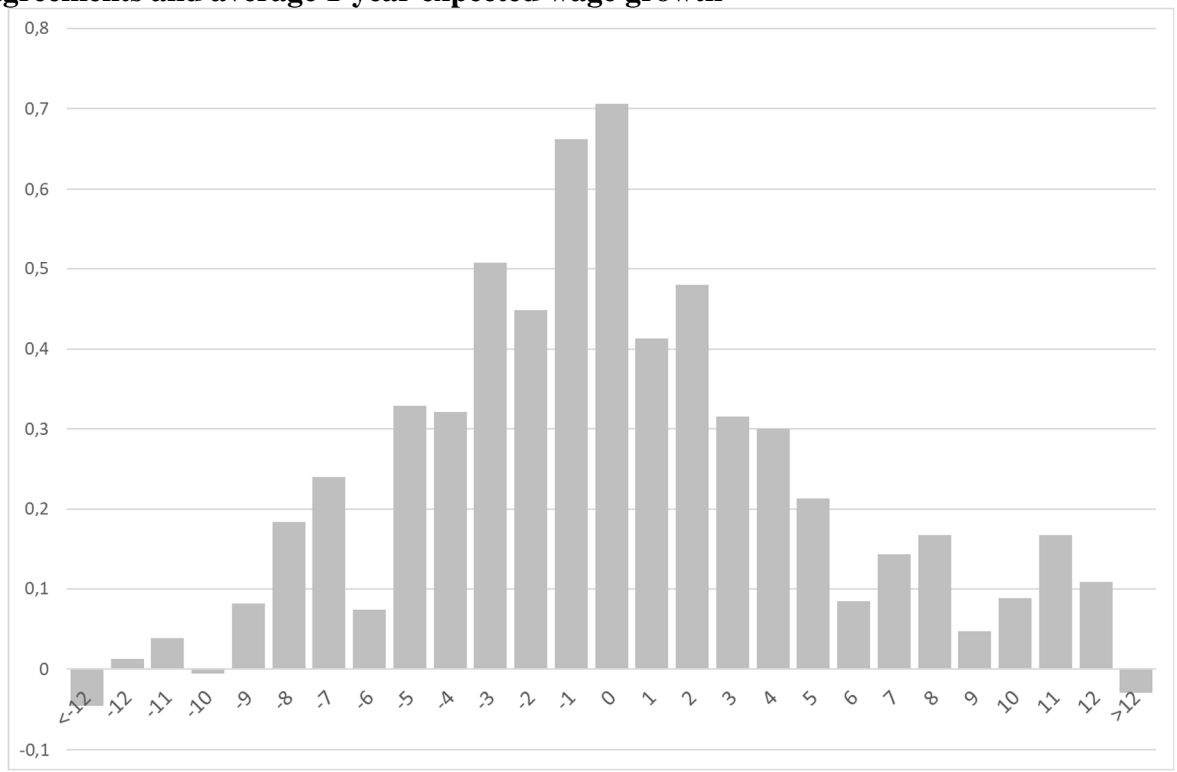
In France, firms must by law negotiate on wages every year. They do not have an obligation to reach a wage agreement but they need to discuss this topic with unions. Since unions are present mainly in large firms (more than 50 employees), this obligations applies in practice in larger firms. All wage agreements are collected by Ministry of Labour and made public through a dedicated web site (Legifrance.fr). We have collected and coded a large data set of wage agreements containing most of wage agreements which have been made public on the dedicated public web site. The wage agreement data set contains the firm identifier, the date of signature of the agreement, the date at which it becomes effective, the general wage increase, and the average individual wage increases. We are able to match this data set with the survey answers from the expectation module of the Banque de France survey.
The sample for which we both observe at least a wage agreement signed at the firm level and expected wage growth reported in the quarterly survey contains about 1,200 different firms (mostly large firms, half of them have between 50 and 250 employees and half of them more than 250 employees), about 90% of these firms are in the manufacturing sector. For 37% of firms, we observe one collective wage agreement, 28% two wage agreements, 20% three wage agreements, 15% four wage agreements over the period 2021-2024.

Appendix Figure 3: Average wage growth in wage agreements and average 1-year expected wage growth



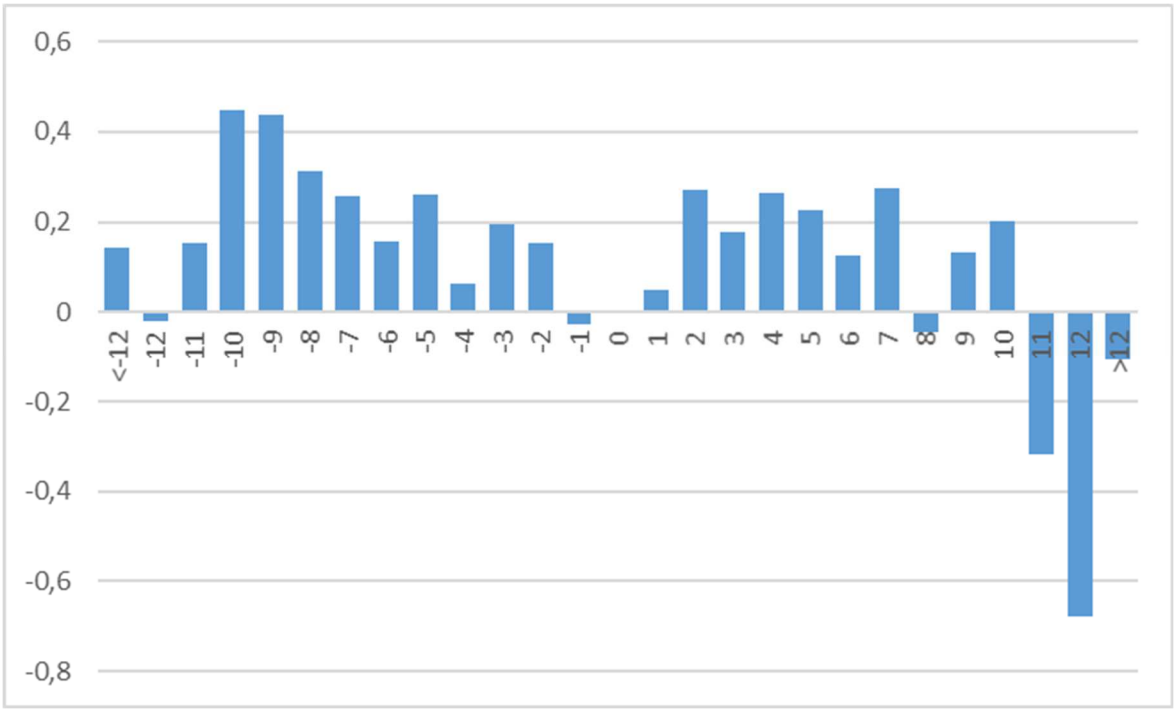
Note: this graph plots the average wage growth contained in the wage agreement concluded at the firm level in a given quarter with the average 1- year wage growth expectations reported in the same quarter. Calculations have been made using the sample of firms for which we have information on both a wage agreement and 1-year inflation expectation in a given quarter. The sample contains about 1,500 firms for which the match is possible.

Appendix Figure 4: Dynamic correlation between the average wage growth in wage agreements and average 1-year expected wage growth



Note: this graph plots the estimated coefficients of a Huber regression linking average wage growth contained in the wage agreement concluded at the firm level at the period (t) to the expected wage growth reported by the same firm (before or after the wage agreement). Controls for size, sector and region of the firm have been included to the regression. Calculations have been made using the sample of firms for which we have information on both a wage agreement and 1-year inflation expectation in a given quarter. The sample contains about 1,500 firms for which the match is possible.

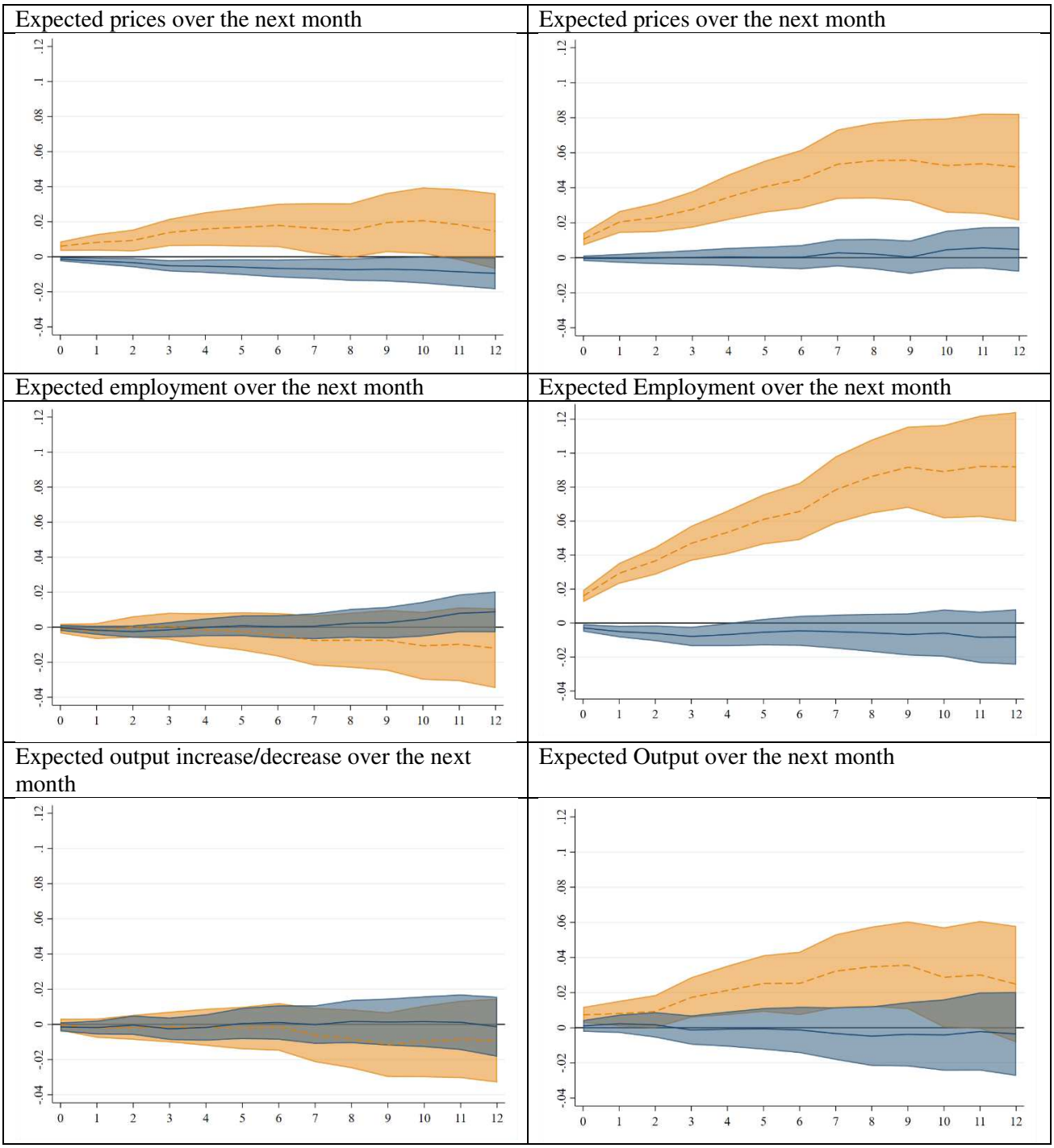
Appendix Figure 5: Estimation of the difference between the average wage growth in a wage agreement at date t and the average 1-year expected wage growth reported at different horizons before and after the agreement



Note: this graph plots the estimated coefficients of a Huber regression where we link the different between the average wage growth contained in the wage agreement concluded at the firm level at the period (t) to the expected wage growth reported by the same firm (before or after the wage agreement) and the horizon effect at which the wage expectation is reported (before/after the agreements). Controls for size, sector and region of the firm have been included to the regression. Calculations have been made using the sample of firms for which we have information on both a wage agreement and 1-year inflation expectation in a given quarter. The sample contains about 1,500 firms for which the match is possible.

Appendix Figure 6: The Average Effect of 1-Year Inflation and Wage Growth Expectations on Future Prices, Employment and Output

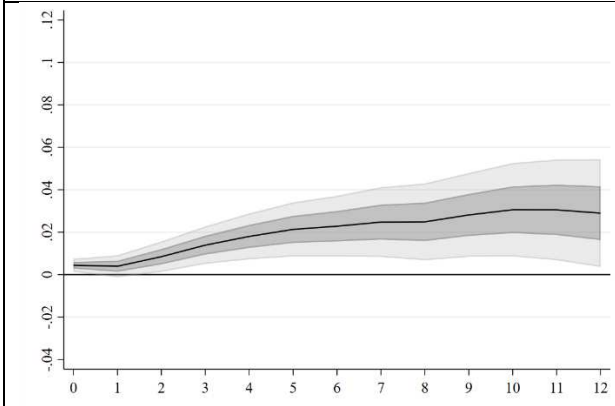
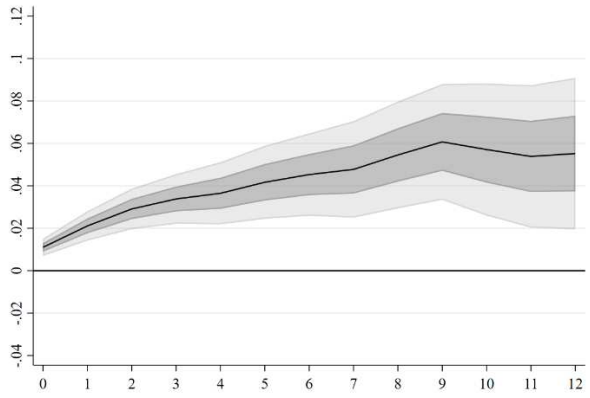
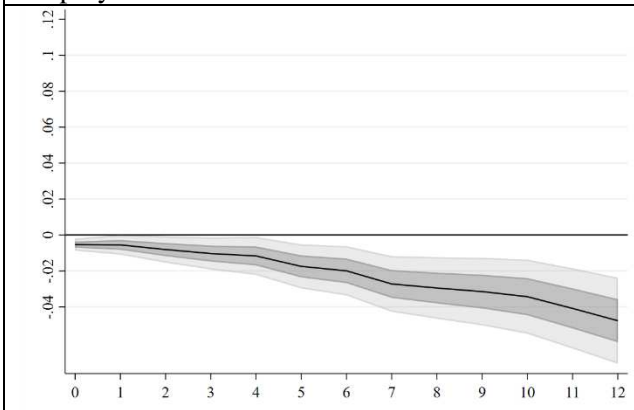
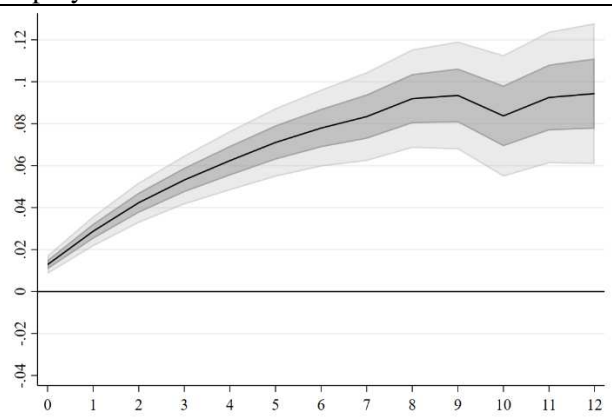
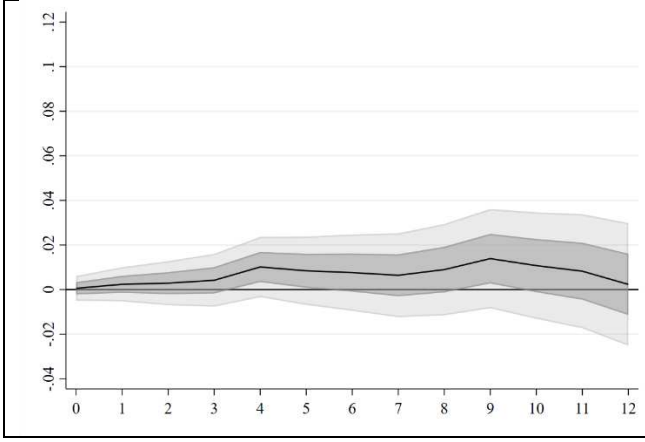
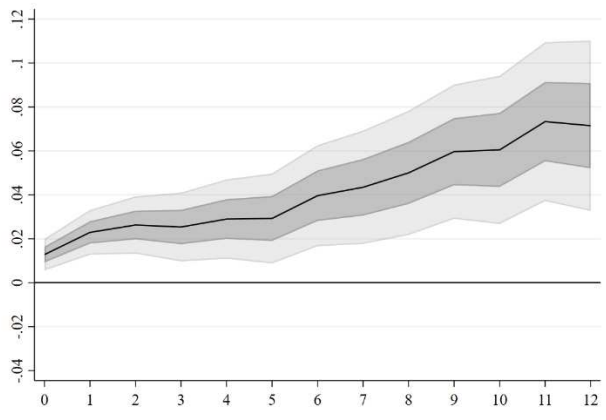
a) ***1Y Inflation expectations*** ***b) Own-Wage 1Y expectation***



Note: each panel plots the estimates from local projections where the endogenous variable cumulates the dummy variable for price increase (red line) or a dummy variable for price decreases (blue line) (taking values +1/0) over horizon t+h (=1,…12) and the exogenous variable is the aggregate inflation and wage growth expectation at date t+0. Dotted lines correspond to the 95% confidence interval. Controls include perceived inflation, date, sector, region and size fixed effects.

Appendix Figure 7: The Average Effect of 1-year Inflation and Wage Expectations on Prices, Employment and Output over the last month

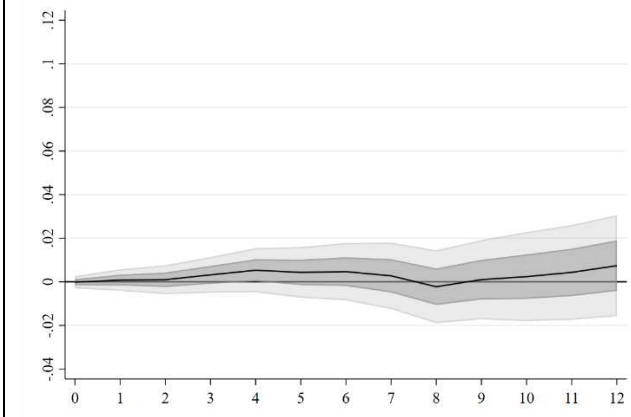
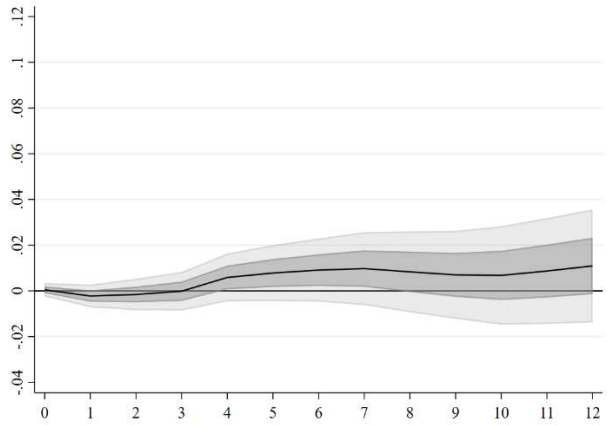
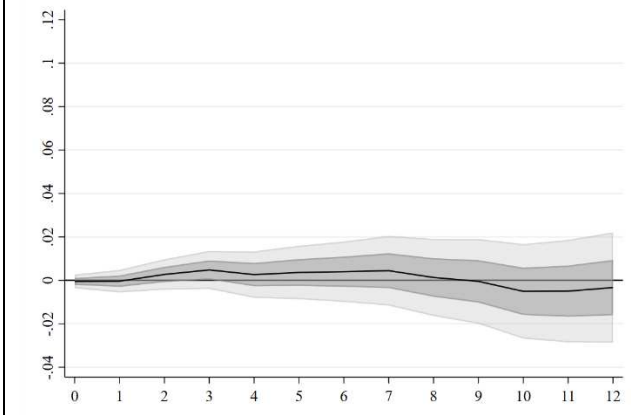
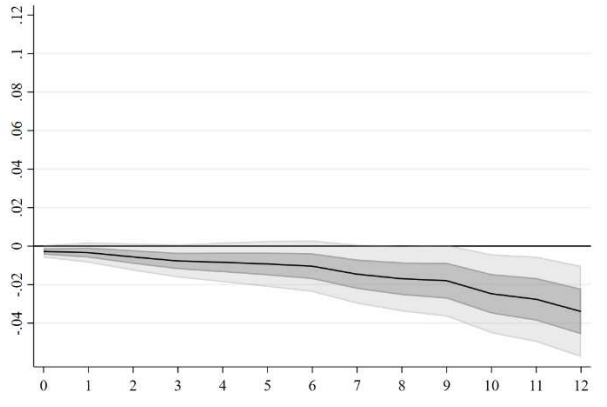
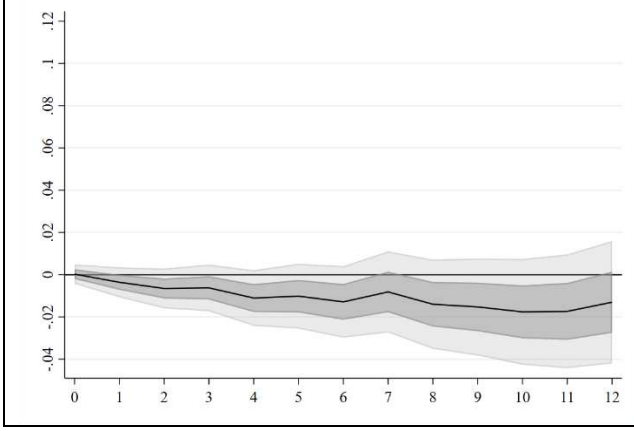
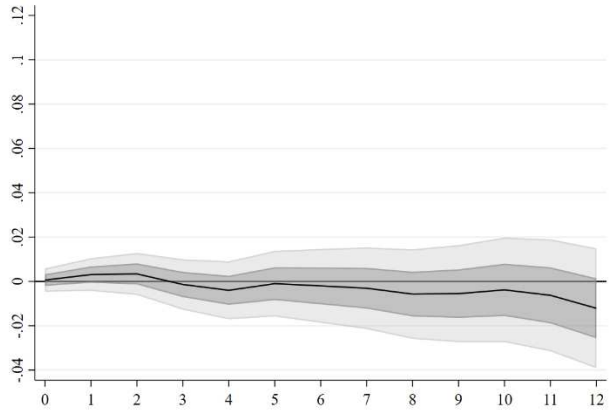
b) ***1Y Inflation expectations*** ***b) Own-Wage 1Y expectation***

Prices over the last month	Prices over the last month
	
Employment over the last month	Employment over the last month
	
Output over the last month	Output over the last month
	

Note: each panel plots the estimates from local projections where the endogenous variable cumulates an ordered qualitative variable for price increase/stable prices/price decrease (taking values +1/0/-1) over horizon t+h (=1,…12) and the exogenous variable is the aggregate inflation and wage growth expectation at date t+0. Dotted lines correspond to the 95% confidence interval. Controls include perceived inflation, date, sector, region and size fixed effects.

Appendix Figure 8: The Average Effect of Long Term Expectations on Prices, Employment and Output

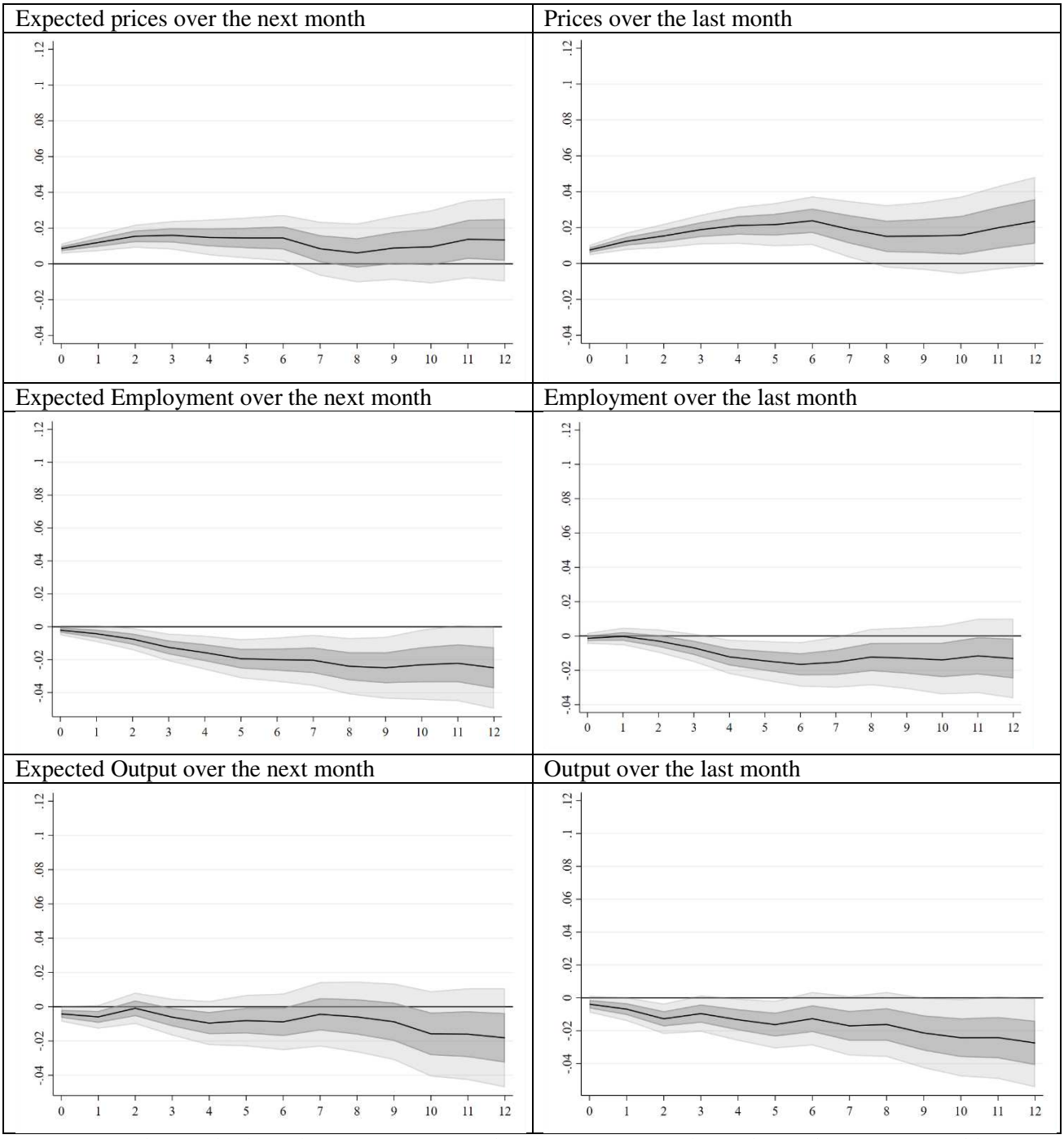
Long term inflation expectation

Expected prices over the next month	Prices over the last month
	
Expected Employment over the next month	**Employment over the last month**
	
Expected Output over the next month	**Output over the last month**
	

Note: each panel plots the estimates from local projections where the endogenous variable cumulates an ordered qualitative variable for price increase/stable prices/price decrease (taking values +1/0/-1) over horizon t+h (=1,…12) and the exogenous variable is the aggregate inflation long term expectation (3 to 5 year horizon) at date t+0. Dotted lines correspond to the 95% confidence interval. Controls include perceived inflation, date, sector, region and size fixed effects.

Appendix Figure 9: The Average Effect of Inflation Perception on Prices, Employment and Output

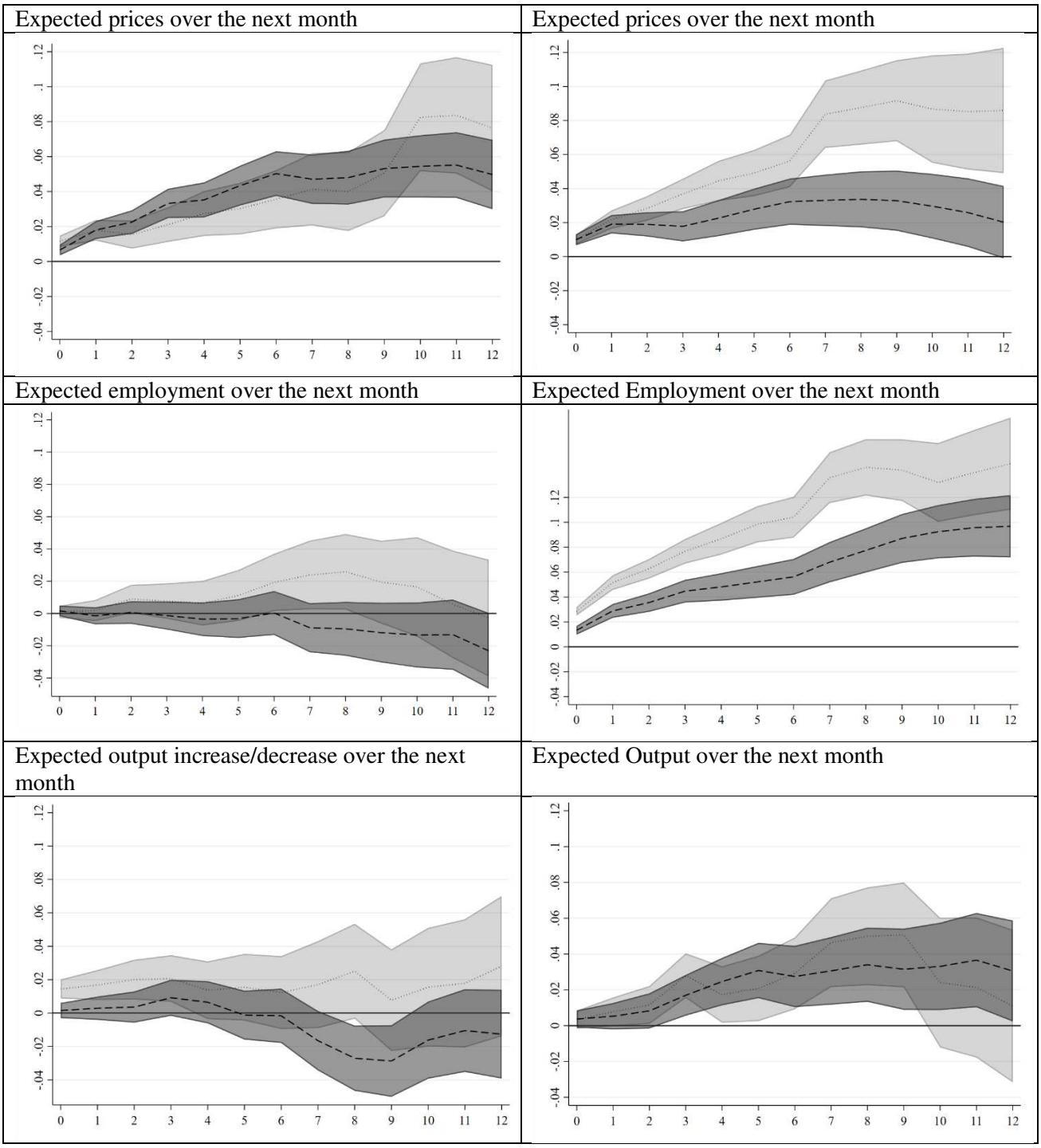
Inflation perception



Note: each panel plots the estimates from local projections where the endogenous variable cumulates an ordered qualitative variable for price increase/stable prices/price decrease (taking values +1/0/-1) over horizon t+h (=1,…12) and the exogenous variable is the aggregate perceived rate at date t+0. Dotted lines correspond to the 95% confidence interval. Controls include perceived inflation, date, sector, region and size fixed effects.

Appendix Figure 10: The Average Effect of 1-Year Inflation and Wage Growth Expectations on Future Prices, Employment and Output – High Inflation (CPI inflation>4% - Inflation expectations<10%

a) ***1Y Inflation expectations*** ***b) Own-Wage 1Y expectation***



Note: each panel plots the estimates from local projections where the endogenous variable cumulates an ordered qualitative variable for price increase/stable prices/price decrease (taking values +1/0/-1) over horizon t+h (=1,…12) and the exogenous variable is the aggregate inflation and wage growth expectation at date t+0. Dotted lines correspond to the 95% confidence interval. Controls include perceived inflation, date, sector, region and size fixed effects.

Appendix Table 1: Descriptive statistics

(%)	Inflation			Wage growth
	Perception	1-year expectation	3-5 year expectation	1-year expectation
Mean	4.60	4.20	3.24	2.78
Median	4.10	3.60	2.53	2.77
SD	2.03	2.24	2.34	1.54
Response rate	94.0	89.9	75.9	85.2

Average inflation: 3.56% *Average wage growth : 3.15%*

Note: Statistics are calculated for each wave and we report average across waves

Appendix Table 2: Impact of Inflation Perceptions/Expectations on Wage Growth Expectations Over Time

	(1)	(2)	(3)	(4)	(5)
Past inflation					
#2020	0.011			-0.014	-0.031
	(0.036)			(0.043)	(0.046)
#2021	0.155***			0.150***	0.154***
	(0.017)			(0.024)	(0.025)
#2022	0.168***			0.158***	0.169***
	(0.009)			(0.011)	(0.012)
#2023	0.084***			0.063***	0.065***
	(0.009)			(0.011)	(0.012)
#2024	0.152***			0.118***	0.124***
	(0.014)			(0.018)	(0.020)
1-y expectations					
#2020		0.042		0.051	0.028
		(0.041)		(0.052)	(0.054)
#2021		0.133***		0.055**	0.089***
		(0.017)		(0.022)	(0.027)
#2022		0.095***		0.037***	0.034***
		(0.007)		(0.009)	(0.011)
#2023		0.083***		0.050***	0.056***
		(0.009)		(0.011)	(0.014)
#2024		0.152***		0.073***	0.068***
		(0.016)		(0.020)	(0.026)
3-5-y expectations					
#2020			0.063		0.059
			(0.041)		(0.050)
#2021			0.065***		-0.010
			(0.017)		(0.020)
#2022			0.029***		-0.012
			(0.008)		(0.010)
#2023			0.028***		-0.021
			(0.010)		(0.012)
#2024			0.072***		0.010
			(0.014)		(0.017)
# obs.	17,034	16,477	14,144	16,310	13, 892

*Note: the table reports estimates of Huber regressions linking answers to the wage growth expectation question to answers on perceived and expected inflation interacted with year dummy variables. Sector, size, wave, and region fixed effects are also included. *** 1%, ** 5%, * 10%.*

Appendix Table 3: Revisions in Wage Growth Expectations and Inflation Expectations

Wage growth expectations	No time FE	Year FE	Year*Quarter FE	Attention	High inflation	Large revision
Past inflation	0.141***	0.094***	0.045***	-0.002	0.062***	0.046***
	(0.009)	(0.009)	(0.010)	(0.014)	(0.014)	(0.010)
1-y expectations	0.086***	0.070***	0.055***	0.083***	0.059***	0.065***
	(0.010)	(0.010)	(0.010)	(0.017)	(0.015)	(0.010)
3-5-y expectations	-0.002	0.004	0.013	-0.014	-0.003	0.016*
	(0.009)	(0.009)	(0.009)	(0.016)	(0.014)	(0.009)
# attentive to inflation						
Past inflation				0.082***		
				(0.017)		
1-y expectation				-0.039**		
				(0.020)		
3-5-y expectation				0.037*		
				(0.020)		
# high inflation						
Past inflation					-0.034*	
					(0.020)	
1-y expectation					-0.006	
					(0.010)	
3-5-y expectation					0.029	
					(0.018)	
# large revisions						
Past inflation						-0.037
						(0.056)
1-y expectation						-0.012
						(0.038)
3-5-y expectation						-0.070*
						(0.042)
Time fixed-effect	Yes	Yes	Yes	Yes	Yes	Yes
# obs.	6,282	6,282	6,282	6,282	6,282	6,282

*Note: the table reports estimates of Huber regressions linking revisions in wage growth expectations (calculated at the individual level, from a year to another) to revisions in perceived and expected inflation. In column (1), no time fixed effects are included, column (2) year effects are included, (3) date (quarter*year) are included. Columns (4), (5) and (6) report results interacted by attention (dummy equal to one if the difference between perceived and actual inflation is below 1% in absolute values), by inflation regime (high inflation equal to 1 if CPI inflation is larger than 4%), and large revision dummy (equal to 1 if the expectation revision is larger than 10%). Sector, size, wave, and region fixed effects are also included. Robust standard errors are reported in parenthesis. *** 1%, ** 5%, * 10%.*