

Firms' Inflation Expectations: New Evidence from France

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The views expressed in this presentation are those of the authors and do not necessarily reflect those of the Banque de France or the Eurosystem.

Motivations

▶ **Why monitoring firms' aggregate inflation expectations?**

- ▶ Key role in accounting for macroeconomic dynamics
- ▶ Expectations-augmented Phillips curve relating nominal and real variables conditional on aggregate inflation expectations (Gali and Gertler 1999, Mankiw and Reis 2002, Woodford 2003, Nimark 2014...)
- ▶ Policy-relevant issue in a higher-than-usual inflation context

Isabel Schnabel: *"We need to prevent high inflation from becoming entrenched in expectations"*

▶ **Limited but growing evidence on aggregate inflation expectations of firms**

- ▶ Most monthly business surveys document only short-term movements in firms' own prices
- ▶ Some large country-representative surveys with quantitative questions on aggregate inflation expectations (Candia et al. 2022):

Banca d'Italia since 1999 (Visco 1987, Bartiloro et al. 2019), Uruguay (Frache and Lluberas 2019), Ukraine (Coibion and Gorodnichenko 2015), Japan (Kaihatsu and Shiraki 2016, Muto 2015), US (Candia et al. 2021, McClure et al. 2022).

A New Firm Survey on Inflation Expectations

- ▶ **Quarterly module of Banque de France monthly business survey**
 - ▶ About 8,000 firms (1/4 interviewed each quarter)
 - ▶ Phone survey among CEOs/CFOs
 - ▶ Large and small firms in all sectors (industry, construction, services)
 - ▶ High response rates (higher than 80%) [▶ More](#)

- ▶ **Quantitative questions on inflation and wages**
 - ▶ Perceived inflation, inflation expectations (1- year horizon and long-term horizon 3-5 years)
 - ▶ Wage growth in the next 12 months (within the firm)
 - ▶ Open questions with no extra information/guidance

- ▶ **Two phases:**
 - ▶ Pilot phase: 5 monthly waves in two large regions between 2020 and 2021 **[This paper]**
 - ▶ Regular phase: country-wide quarterly waves since 2021Q4 [first results on 2021Q4, 2022Q1 and 2022Q2]

Pilot Phase of the Survey

▶ Our sample of firms

- ▶ 2 large administrative regions (Hauts de France - Lille, PACA Marseille-Nice)
- ▶ 1,000 firms divided into four comparable samples (firms' size, regions, industries)
- ▶ Five monthly waves with different phrasing of questions ▶ Questionnaires
 - ▶ Four waves between September and December 2020 (0% inflation)
 - ▶ One in May 2021 (inflation 1.4%): 75% of the firms from the initial sample were randomly selected and re-interviewed

▶ Testing different wording of questions

- ▶ Qualitative vs quantitative questions
- ▶ "Consumer prices" vs. "Inflation"
- ▶ December 2020: Information treatment using actual inflation
- ▶ Perceptions and expectations
- ▶ Long-term expectations: 2-years, 5-years, 3- to 5 years
- ▶ Wage growth (aggregate – firm-specific, perceived – expected)

▶ Additional information collected

- ▶ Difficulties to answer the questionnaire
- ▶ Job position of the respondent (CEO, CFO,...)

Fact 1: Slight overestimation of inflation

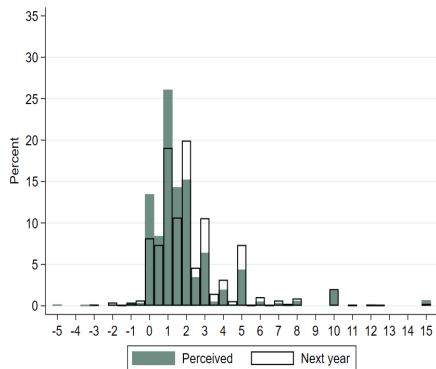
	Mean	Median	Std.	N
Inflation (<i>CPI: 0% end 2020 - 1.4% May 2021</i>)				
Perception	1.8	1.3	2.4	1,196
Expectation 1-year ahead	2.0	2.2	2.0	1,242
Expectation 2-years ahead	2.1	1.5	2.0	801
Expectation 3 to 5-years ahead	2.5	2.0	2.3	150
Expectation 5-years ahead	2.3	2.0	2.3	392
Wage growth (<i>Base wage growth: 1.6% 2020-2021</i>)				
Perception	0.9	1.0	1.4	370
Expectation 1-year ahead	1.3	1.0	1.5	908

*Calculations made from a sample pooling all answers across the different waves.

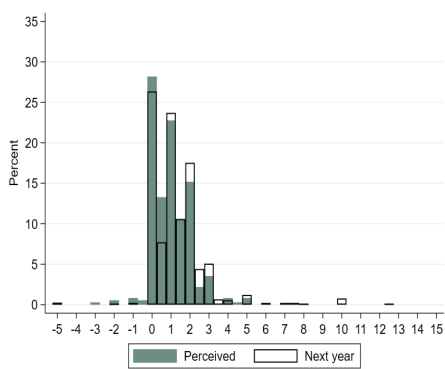
- ▶ *Inflation perception of households: 5% (average) 3% (median)*
- ▶ *BDF HICP forecast: 0.5-1% for 2021-2023 (end 2020), 1.2% for 2022-2023 (June 2021)*

Fact 2: Limited Dispersion of Answers

Inflation



Wage growth



- ▶ Asymmetry in both distributions despite inflation close to 0 (end 2020) (Gorodnichenko and Sergeyev, 2021 or Andrade et al. 2021)
- ▶ Few firms answering very large values for expected inflation (standard deviation of household answers of about 5% vs 2-2.5% for firms)

Fact 3: Phrasing of questions matters

Table : Wording and Inflation Perceptions/Expectations: OLS results

	Perception	Inflation			Difficulty responding
		1-Y ahead	2-Y ahead	5-Y ahead	
"Prices"	0.798*** (0.289)	0.304 (0.203)	0.235 (0.241)	-	-0.082* (0.046)
"Inflation"	ref.	ref.	ref.	ref.	ref.
Info. treatment	-	-0.733*** (0.183)	-0.659*** (0.279)	-0.419 (0.275)	0.019 (0.074)
Obs.	1,196	1,242	801	542	1,445

* Controls for size, sector, wave, job position, region are included

- ▶ Short-lived effect of information treatment: no effect on firms' answers 6 months after (May 2021)

Fact 4: Job position matters

Table : Job Position and Inflation Perceptions/Expectations: OLS results

	Perception	Inflation			Wage growth
		1-Y ahead	2-Y ahead	5-Y ahead	1-Y ahead
CEO	ref.	ref.	ref.	ref.	ref.
CFO	0.369** (0.169)	0.323** (0.149)	0.226 (0.180)	-0.131 (0.272)	-0.195** (0.088)
Other position	0.718*** (0.257)	0.654*** (0.206)	0.502*** (0.217)	0.312 (0.352)	-0.038 (0.118)
Obs.	1,196	1,242	801	542	818

* Controls for size, sector, wave, wording, region are included

- ▶ About 45% of respondents are CEOs, 30% CFOs [▶ Composition](#)
- ▶ Managers in smaller firms report higher inflation expectations [▶ More](#)
- ▶ Firm's own decision on prices affect aggregate inflation expectations (Andrade et al. 2022)

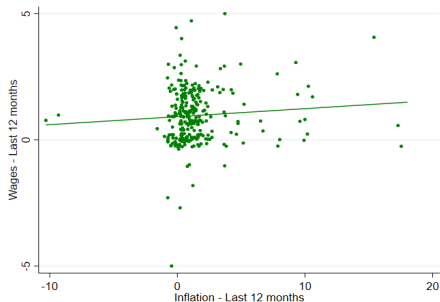
Fact 4: Job position matters - household survey evidence

	Inflation Perception Past 12 months	Inflation Expectation Next 12 months
All managers	-0.804** (0.169)	-0.916*** (0.149)
Obs.	21,010	19,568
R ²	0.07	0.04
Small retail business manager	-0.694*** (0.169)	-0.501*** (0.165)
CEO (>10 workers)	-1.550*** (0.371)	-1.591*** (0.303)
Executive manager (admin., engineers...)	-1.061*** (0.103)	-0.790*** (0.101)
Non manager categories	Ref.	Ref.
Obs.	21,691	20,209
R ²	0.07	0.04

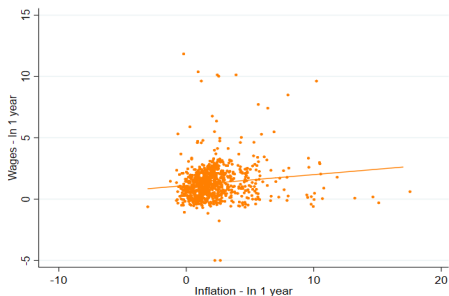
*Sources: European Commission Survey (French households 2019-2021), controls for education, income, location, age, gender... are included

Fact 5: Weak correlation between inflation and wage growth expectations

Inflation perceptions

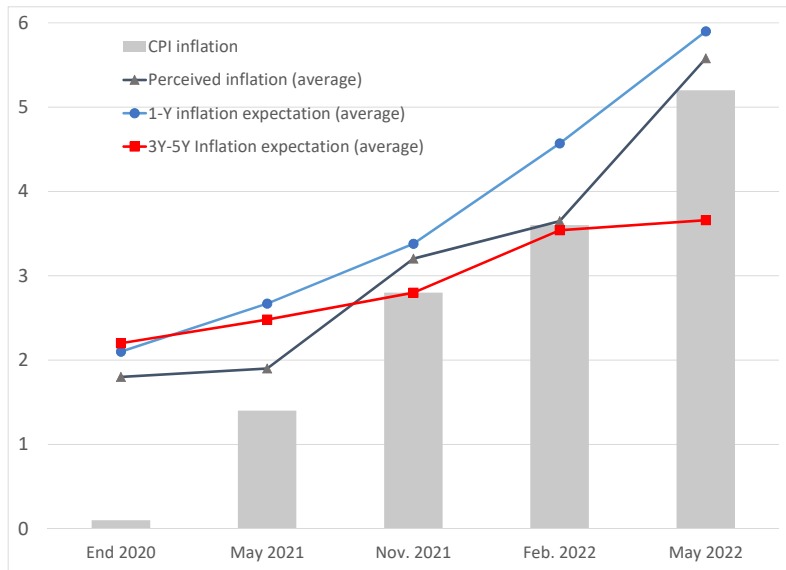


Inflation expectations



- ▶ Correlation between inflation expectations and wage growth expectations (OLS regressions - all controls included): $+0.05^{**}$
- ▶ No link between revisions in 1-Y inflation expectations and revisions in 1-Y wage growth expectations [▶ More](#)

Fact 6: Inflation Expectations Move with Inflation



Fact 6: Inflation Expectations Move with Inflation

	Perception	Inflation		Wage growth
		1-Y ahead	3-Y/5-Y ahead	1-Y ahead
End 2020	Ref.	Ref.	Ref.	Ref.
May 2021	0.142 (0.124)	0.595*** (0.133)	0.152 (0.150)	0.490*** (0.138)
Nov. 2021	1.480*** (0.289)	1.514*** (0.252)	0.692*** (0.261)	1.603*** (0.215)
Feb. 2022	2.007*** (0.189)	2.455*** (0.234)	1.221*** (0.318)	1.612*** (0.194)
May. 2022	3.584*** (0.236)	3.901*** (0.251)	1.230*** (0.315)	2.407*** (0.219)
R2	0.231	0.223	0.044	0.198
Obs.	1,713	1,647	1,414	1,321

*fixed-effect OLS regression, obs collected in the 2 regions of the pilot survey.

Conclusion

- ▶ **Main takeaways about inflation expectations of firms' managers**
 - ▶ Limited perception bias (as compared with households) but expectations higher than professional forecasters
 - ▶ Cross section dispersion of answers smaller than the one observed for households
 - ▶ But role of the job position, firms' characteristics, information available (perceptions, local shocks, info treatment)
 - ▶ Small link between wage growth and inflation expectations
 - ▶ Inflation expectations move with inflation, including long-term expectations

- ▶ **Set-up a new large scale survey on aggregate inflation expectations of firms' managers**
 - ▶ First BDF publication of aggregate results today

APPENDIX

Wave 1 - Sep 2020

▶ Phrasing A1

- ▶ Q1 According to you, over the last 12 months, how have consumption prices in France evolved? *[They have gone up a lot/gone up somewhat/they have been pretty stable/they have gone down somewhat/they have gone down a lot.]*
- ▶ Q2. As a percentage, what do you think has been the change in consumption prices over the last 12 months? (ie between Sep 2019 and Sep 2020)
- ▶ Q3. According to you, over the next 12 months, how will consumption prices in France evolve? *[They will go up a lot/go up somewhat/they will be pretty stable/they will go down somewhat/they will go down a lot.]*
- ▶ Q4. As a percentage, what do you think will be the change in consumption prices over the next 12 months? (ie between Sep 2020 and Sep 2021)
- ▶ Q5. As a percentage, what do you think will be the change in consumption prices between Sep 2021 and Sep 2022? **Ã**

▶ Phrasing A2

- ▶ Q1. As a percentage, what do you think has been the change in consumption prices over the last 12 months? (ie between Sep 2019 and Sep 2020)
- ▶ Q2. As a percentage, what do you think will be the change in consumption prices over the next 12 months? (ie between Sep 2020 and Sep 2021)
- ▶ Q3. As a percentage, what do you think will be the change in consumption prices between Sep 2021 and Sep 2022?

Wave 2 - Oct 2020

▶ Phrasing A2

- ▶ Q1. As a percentage, what do you think has been the change in consumption prices over the last 12 months? (ie between Oct. 2019 and Oct. 2020)
- ▶ Q2. As a percentage, what do you think will be the change in consumption prices over the next 12 months? (ie between Oct. 2020 and Oct. 2021)
- ▶ Q3. As a percentage, what do you think will be the change in consumption prices between Oct 2021 and Oct 2022? $\hat{\Delta}$

▶ Phrasing B

- ▶ Q1. As a percentage, what do you think is the current inflation rate in France?
- ▶ Q2. As a percentage, what do you think the inflation rate will be in France in one year?
- ▶ Q3. As a percentage, what do you think the inflation rate will be in France in two years?
- ▶ Q4. As a percentage, what do you think the inflation rate will be in France in five years?

Wave 3 - Nov 2020

▶ Phrasing A2

- ▶ Q1. As a percentage, what do you think has been the change in consumption prices over the last 12 months? (ie between Nov. 2019 and Nov. 2020)
- ▶ Q2. As a percentage, what do you think will be the change in consumption prices over the next 12 months? (ie between Nov. 2020 and Nov. 2021)
- ▶ Q3. As a percentage, what do you think will be the change in consumption prices between Nov. 2021 and Nov. 2022?

We are now going to turn to average changes of (base) salaries in France, meaning (base) wages (excluding bonuses or benefits).

- ▶ Q4. As a percentage, what do you think has been the change in the average (base) salaries in France over the last twelve months?
- ▶ Q5. As a percentage, what do you think will be the change in the average (base) salaries in France over the next twelve months? $\hat{\Delta}$ $\hat{\Delta}$

▶ Phrasing B

- ▶ Q1. As a percentage, what do you think is the current inflation rate in France?
 - ▶ Q2. As a percentage, what do you think the inflation rate will be in France in one year?
 - ▶ Q3. As a percentage, what do you think the inflation rate will be in France in two years?
 - ▶ Q4. As a percentage, what do you think the inflation rate will be in France in five years?
- We are now going to turn to average changes of wages in France.
- ▶ Q5. As a percentage, what do you think has been the change in the average wages in France over the last twelve months?
 - ▶ Q6. As a percentage, what do you think will be the change in the average wages in France over the next twelve months?

Wave 4 - Dec 2020

▶ Phrasing B

- ▶ Q1. As a percentage, what do you think is the current inflation rate in France?
- ▶ Q2. As a percentage, what do you think the inflation rate will be in France in one year?
- ▶ Q3. As a percentage, what do you think the inflation rate will be in France in two years?
- ▶ Q4. As a percentage, what do you think the inflation rate will be in France in five years?
We are now going to turn to average changes of (base) salaries in France, meaning (base) wages (excluding bonuses or benefits).
- ▶ Q4. As a percentage, what do you think has been the change in the average (base) salaries in France over the last twelve months?
- ▶ Q5. As a percentage, what do you think will be the change in the average (base) salaries in France over the next twelve months? $\hat{\Delta}$ $\hat{\Delta}$

▶ Phrasing C

In November 2020, the inflation rate in France was 0.2%.

- ▶ Q1. As a percentage, what do you think the inflation rate will be in France in one year?
- ▶ Q2. As a percentage, what do you think the inflation rate will be in France in two years?
- ▶ Q3. As a percentage, what do you think the inflation rate will be in France in five years?
We are now going to turn to average changes of base wages in France.
- ▶ Q4. As a percentage, what do you think has been the change in the average (base) salaries in France over the last twelve months?
- ▶ Q5. As a percentage, what do you think will be the change in the average (base) salaries in France over the next twelve months?

Wave 5 - May 2021

▶ Phrasing D

- ▶ Q1. As a percentage, what do you think is the current inflation rate in France?
- ▶ Q2. As a percentage, what do you think the inflation rate will be in France in one year?
- ▶ Q3. As a percentage, what do you think the inflation rate will be in France in two years? or 3 to 5 years ? or 5 years?

We are now going to turn to average changes of base wages in your firm.

- ▶ Q4. As a percentage, what do you think will be the change in the average (base) salaries in your firm over the next twelve months? $\hat{\Delta}$ $\hat{\Delta}$

Job position: sample composition

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	Total	< 50 workers	> 50 workers
CEO	43.1	59.6	28.0
CFO	30.4	17.5	42.3
Accounting Director	5.0	2.5	5.2
General Management	7.3	4.8	11.6
Production Supervisor	4.8	5.4	4.2
Human Resources Director	0.5	0.2	0.8
Other (marketing, sales...)	6.6	7.5	5.8
DNK	2.3	2.5	2.1
Obs.	923	441	482

*fixed-effect OLS regression, controls for size, sector, region are included

Response Rates

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Info. on inflation	All - Prices	Prices in general	Inflation		Wages
	-	No	No	Yes	-
Previous 12 months	88.4	87.3	88.9	-	94.4
Next 12 months	86.0	86.1	85.4	90.2	89.4
Two years ahead	78.6	76.4	79.5	84.8	-
5 years ahead	65.9	-	65.8	66.3	-
Obs.	1,445	440	913	92	1,016

Effect of Firm Characteristics

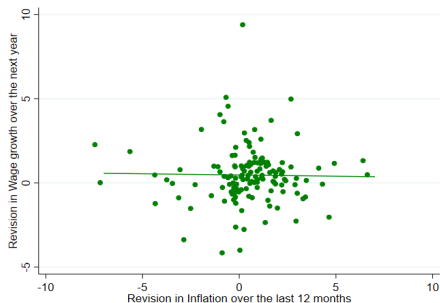
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	Perception	Inflation		Difficulty	
		1-Y ahead	2-Y ahead	5-Y ahead	responding
Sector (ref= services)					
Construction	0.434** (0.213)	0.457** (0.222)	0.013 (0.257)	0.722* (0.434)	-0.074* (0.281)
Industry	-0.222 (0.182)	-0.292* (0.154)	-0.396** (0.166)	-0.127 (0.23)	-0.067** (0.031)
Size (ref= < 50 workers)					
> 50 workers	-0.670*** (0.180)	-0.638*** (0.148)	-0.565*** (0.162)	-0.428 (0.267)	-0.044 (0.029)
Firms' Own Prices (ref= Stable)					
Increase	0.417* (0.236)	0.438** (0.197)	0.113 (0.255)	0.107 (0.244)	0.006 (0.043)
Decrease	-0.208 (0.406)	-0.419 (0.308)	0.415 (0.579)	0.593 (0.413)	0.058 (0.065)
Obs.	1,196	1,242	801	542	1,445

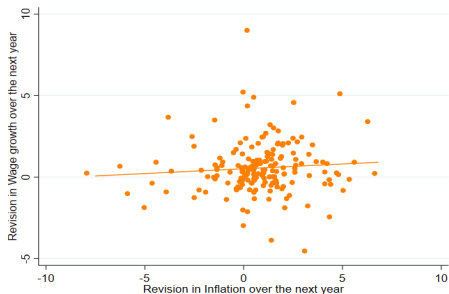
Link between Inflation Revisions and Wage Growth Revisions

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Revisions in Inflation Perceptions and Wage Growth Expectations



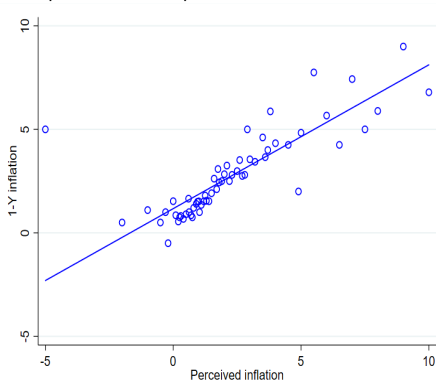
Revisions in Inflation Expectations and Wage Growth Expectations



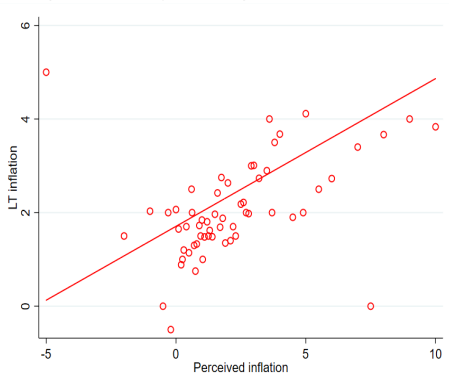
* Revisions are calculated between answers collected in the end of 2020 and the wave conducted in May 2021 for the same firms.

Correlation between Perceptions and Expectations

Perceptions vs 1-Y Expectations



Perceptions vs Long Term Expectations



- ▶ Regression coefficients: 0.65^{***} for 1-Y inflation expectations, 0.27^{***} for long-run expectations

Wage Growth Expectation Over Time

