

[Firms' Price, Cost and Activity Expectations: Evidence from Micro Data](#)

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Expectations play a central role in modern economics. The question of how to model expectations revolutionized macroeconomics in the 1970s and has, of course, been the subject of several Nobel Prizes. Expectations now play a key role in our understanding of business cycles and the design of policy institutions. The beliefs of firms are particularly important: Firms' expectations about prices and costs may affect their current pricing decisions and influence aggregate inflation dynamics. Different expectations about economic activity may lead to different outcomes today. But, despite decades of theoretical emphasis on expectations in macroeconomics, there is still relatively little empirical evidence about what influences firms' expectations or whether these matter in reality. This is particularly important in light of the growing theoretical literature which deviates from traditional assumptions of representative agents, complete information and rational expectations in macroeconomics. This empirical gap, in part, stems from data limitations. Ideally expectations need to be measured and although there is a range of well-used datasets that contain information on household and financial market expectations, data --- and therefore empirical evidence --- on the firm-side are much more scarce. We fill this gap using a data set on firms' expectations in manufacturing from the Confederation of British Industry (CBI) in the United Kingdom. Using this dataset, our contribution is to document a range of stylized facts about the degree of heterogeneity in firms' expectations about a range of price, cost and activity measures, the factors most correlated with these expectations, whether these matter for current outcomes and whether these expectations are rational. We thus provide a body of evidence to help inform economic theory.

To understand how firms' expectations line up with the common theoretical assumptions, we structure our analysis around three key issues: information, forward-looking behaviour and rationality. First we ask: How homogeneous are firms' beliefs and what factors can explain the variation in expectations across firms and across time? We show that there is considerable dispersion in beliefs across firms in the UK. Furthermore, there are important differences in the extent to which past outcomes are associated with price, wage, activity and cost expectations. We show that firm-specific influences are important for price and wage growth expectations. Aggregate factors also seem to matter for wage growth and, to a lesser extent, price growth expectations. Expectations of new orders and employment are more associated with firm-specific activity measures, but cost expectations are correlated with both firm-specific cost pressure and aggregate import price growth.

Secondly, we explore whether firms' expectations matter for current pricing decisions. This mechanism is at the heart of many forward-looking macro models; for example the New Keynesian Phillips Curve relates current price inflation to expected future price changes and real marginal cost. We show that price expectations are an important determinant of actual price setting.

Thirdly, we explore whether firms' expectations are rational --- a central tenet of many macroeconomic models in recent decades. We show that the null hypothesis of rationality is rejected for most, if not all, of the expectations variables. Taken together, these results cast doubt on a range of the informational and behavioural assumptions typically made in macroeconomics. Our evidence therefore provides a range of motivating evidence for future theoretical developments.

Several novel features of the CBI's survey facilitate our analysis. In particular, the panel structure and the rich set of expectation and out-turn variables make the survey ideal for our purposes. These data contain expectations and outcomes for price growth, wage growth, new orders, employment and costs. A valuable and distinctive feature of the data described here is that the CBI survey describes firms' expectations of their own future circumstances and allows us to relate these to their reports of past out-turns. This allows us to explore what factors seems to matter for firms' expectations of their own trading situation, while controlling for a range of other influences. As far

as we are aware, we are the first to examine the role of firms' expectations of their own outcomes. We are also able to exploit the dynamics in the data, for example, by examining whether past realizations affect expectations today and whether expectations about the future matter for current pricing decisions.

In exploring the link between expectations and outcomes, our paper also connects to the large time-series literature on the New Keynesian Phillips Curve. In aggregate data, price expectations of firms are not observable. Estimation hence needs to rely on the rational expectations hypothesis and the method of instrumental variables. But the time-series literature is subject to weak instrument problems. This means that the results are not robust to even minor perturbation of the set of instruments. Unlike with macroeconomic data, we actually observe individual firm expectations of their own future price changes together with their subsequent out-turns. Conditional on fixed effects, we use Bayesian model averaging to show that price expectations are a robust determinant of actual price setting.