

Psychological Processes underlying Judgemental Forecasting of Inflation

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INTRODUCTION

To obtain consumers' inflation expectations and inform monetary policy decisions, a large number of national household surveys in different countries have been used by central banks. Although some findings reported that survey measures of inflation expectations tend to track official inflation estimates (Ang, Bekaert, & Wei, 2007), closer inspection of responses has shown considerable disagreement between respondents (Bruine de Bruin, Potter, Rich, Topa, & Van der Klaauw, 2010; Bruine de Bruin, Van der Klaauw, & Topa, 2011; Curtin, 2006; D'Acunto, Malmendier, Ospina, & Weber, 2019). Although heterogeneity between respondents has been studied from different perspectives, such as analysis of demographic groups (Armantier, Nelson, Topa, Van der Klaauw, & Zafar, 2016; Rumler & Valderranma, 2019) and the interpretation of survey questions (Bruine de Bruin et al., 2010), the psychological processes underlying the formation of inflation judgments still require clarification.

As lay people do not generally possess accurate and complex causal models of the economy, it is reasonable to assume that their inflation expectations are based primarily on retrieval of price changes that they have experienced (Ranyard, Missier, Bonini, & Pietroni, 2017; Das, Lahiri, & Zhao, 2019). D'Acunto et al. (2019) reported that consumers cited the price changes observed while grocery shopping as their most important source of information. The frequency effect that perceived inflation is related to frequency of product purchase, with more frequently bought products contributing more to the judgement, was confirmed by Huber (2011) and Jungermann Brachinger, Belting, Grinberg and Zacharias (2007). According to psychological theories of perceived inflation, extreme price changes are especially salient for categories that are purchased frequently (Morewedge, Gilbert, & Wilson, 2005; Del Missier, Ranyard, & Bonini, 2016). Hence, the salience of specific price changes may vary across individuals, depending on their personal experiences with price changes in specific product categories. Therefore, it is reasonable to assume that inflation expectations can be predicted from people's personal experience with prices and price changes.

The aim of the present research is to examine the effects of experience-based price changes on consumer inflation judgments. We hypothesize that (H₁): estimates of inflation will be more strongly related to price changes in product categories that are purchased frequently. Furthermore, we expect (H₂): those estimates to be higher when they are derived indirectly from

differences in price estimates for successive years than when they are estimated directly via intuition.

METHODS

One hundred and twenty-five participants (75 females, 50 males) were recruited for the study to answer a survey. The Qualtrics survey comprised three parts. One part was a sampling task consisting of 60 questions: it contained five questions in each of the 12 consumer product divisions on which the UK Consumer Price Index (CPI) is based. Participants answered questions about their purchasing frequency and the average cost of items in each category for the previous year, the current year and for following year. The last question in each category was ‘Estimate the % of your knowledge that depends on information from other people or the media rather than your own experience of prices’ (a slider range from 0% to 100%). The other part of the survey presented people with an estimation task. After a simple definition of inflation and price change, participants a) estimated the % price change of the current year and b) forecast the % price change of the following year. In the third part of the survey, participants provided their demographical details.

We used a 2 (task order: sampling task took place after or before the estimation task) x 12 (12 CPI categories within the sampling task) mixed design to test our hypotheses.

RESULTS AND DISCUSSION

Participants whose direct inflation estimations and reported purchasing frequency were beyond $2 \pm SD$ were excluded. 110 responses were analysed. A mixed-design ANOVA was performed to test the effects of task order and category on individuals’ reported frequencies. There was a significant main effect of category on frequency. This indicated that frequencies varied across the 12 categories. The correlation between the indirectly estimated price change for 2019 and frequency across 12 categories was calculated for each participant. A one sample t-test revealed that mean of the 110 correlations was significantly different from zero. A similar result was found for the indirectly estimated price change for 2020 (see in Table 1). This result supports H_1 that the change between estimated prices for a category for a given year is greater when people buy items in that category more often.

Table 1. One-sample t-test results comparing the mean of the 110 transformed individual correlations with Test Value = 0 ($N=110$)

	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>
Estimates for 2019	0.10	0.35	2.89	0.005**
Predictions for 2020	0.18	0.34	5.63	<.001***

A paired t-test showed that indirect inflation estimates, averaged over categories, were significantly higher than direct inflation estimation for both 2019 inflation and 2020 inflation (Figure 1). Correlations were calculated between the indirect inflation estimates from sampling task (each of the 12 categories separately) and the direct estimate. One sample t-tests revealed

that the mean correlation was significantly different from zero for 2019 (Figure 2), but not for inflation of 2020. This result indicates that experienced price changes are correlated to perceived inflation estimation, but not correlated to future inflation prediction.

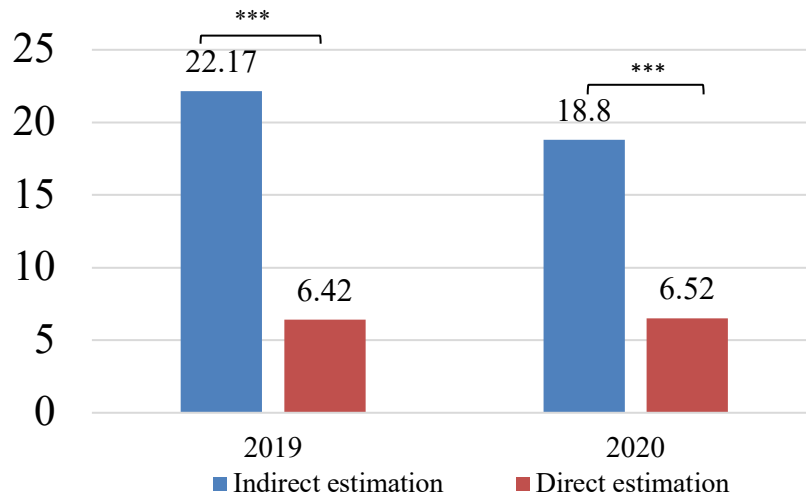


Figure 1. Significant differences between indirect estimation and direct estimation for 2019 and 2020.

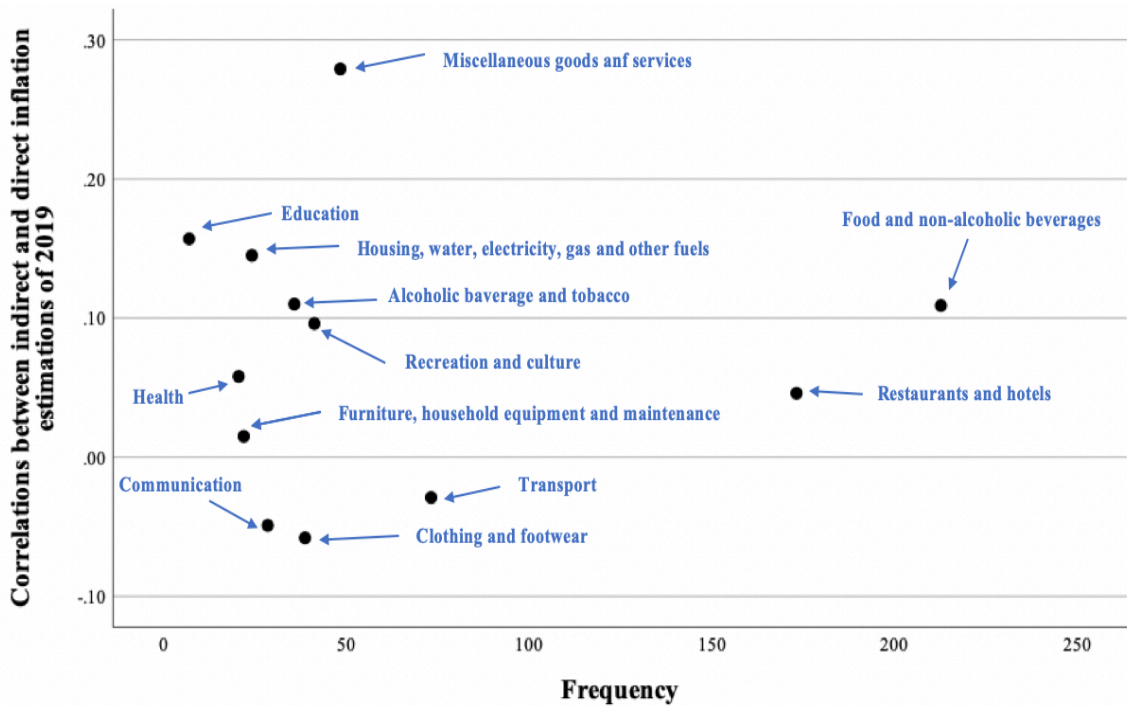


Figure 2. Correlations between indirect inflation estimates for different products and the directly estimated inflation rate plotted against purchase frequency.

Personal purchasing experience (the frequency effect) is related to the formation of inflation estimations. However, accurate inflation estimates are hard to obtain by simply asking people in surveys about their personal experience of price changes. Therefore, a better understanding of how people form their inflation estimates and expectations may allow debiasing of the extremely high judgments obtained in this way. There is scope for further improvement in the accuracy level of survey measures of inflation expectations. Any such improvement is likely to lead to better policy decisions.

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