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Retailing in Times of Soaring Inflation: What We Know, What We Don't Know, and a Research Agenda

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Retailing in Times of Soaring Inflation: What We Know, What We Don't Know, and a Research Agenda

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ABSTRACT

Inflation is back – with a vengeance. Following the highly disruptive years of the pandemic, the world has experienced inflation levels not seen for many decades. A “perfect storm” of underlying causes including expansionary monetary and fiscal policies during the pandemic, pent-up demand, supply-demand imbalances and commodity-driven cost pressures due to unfavorable weather conditions in various regions and Russia’s invasion of Ukraine, all conspired to steeply increase consumer prices levels around the world. While current inflation levels are not unprecedented (they were even higher in the 1970s and 1980s), the decades-long period of extremely low inflation experienced in most countries means that current inflation rates continue to shock consumers, manufacturers and retailers. Equally, academic research has very little to say about how to conduct marketing in inflationary times, and that is why this paper presents an overview of what we know, what we don’t know and what we argue we should know in the form of a research agenda.

We first review key takeaways from prior inflation-focused research in the marketing literature, along with insights that could be derived from related studies that considered other causes of disposable-income reductions. However, given that the inflation literature is sparse, while insights from other forms of disposable-income reduction may not automatically generalize to the current inflationary setting, we identify various knowledge gaps along with a wide-ranging set of questions in need of further research in marketing and retailing. We do so, in the spirit of the Empirics-First approach to relevant knowledge generation, by identifying several frequently used retailer-initiated coping strategies. We subsequently circle back to pertinent prior literature to help with the interpretation of the observed patterns, identify best practices, and warn against potential pitfalls. We hope that this article will inspire cutting-edge research into the consumer-, retailer- and marketing consequences of extreme inflation, a worldwide problem that affects us all and is directly linked to the core role of retailing in the supply-chain channel.

INTRODUCTION

Following the turbulent and highly disruptive years of the pandemic, many expected that 2022 would bring retailers and manufacturers into calmer waters. However, expansionary monetary and fiscal policies during the pandemic, combined with a reduced ability to spend during lockdowns meant that pent-up demand for goods soon inundated many supply chains. The resulting supply-demand imbalances, combined with commodity-driven cost pressures, steeply increased consumer prices levels. In July of 2022, the OECD reported a global year-on-year inflation rate of 9.6%, the highest level in many years. As shown in Figure 1, similar patterns of exponentially increasing price levels were observed across many countries.

Russia's invasion of Ukraine, increasing economic tensions between the US/Europe and China, unfavorable weather conditions in various regions and a boom in the demand for electronics created further shortages of essential inputs to produce many goods and services. This led to further cost increases in many industries' key input categories – raw materials, food ingredients, packaging, computer chips, energy, transport & labor – and sent inflation to even higher levels (IPLC 2022).

A McKinsey & Company survey revealed that by mid-2022, rising price levels had become the number one concern for more than half (53%) of the European customers (Bazzoni et al. 2022), exceeding by far other issues like the invasion of Ukraine (15%), unemployment (8%), extreme weather events (8%) and the Covid-19 pandemic (5%). By the end of the year, soaring inflation had also become the number one concern (43%) among European executives

(Condon et al. 2022). This was also the case among surveyed executives in almost all other parts of the world (North America, Latin America, India and Asia Pacific).³

Looking at graphs such as Figure 1, it should come as no surprise that the current situation has been discussed in countless business reports and referred to “unprecedented” by retailers and manufacturers alike.⁴ While definitely noticeable, the current level of inflation is not unmatched, and similar (or even higher) inflation rates were encountered in the OECD region in both 1974 (14.1%) and 1980 (14.8%). However, because of the extremely low inflation that most countries experienced over the past decades, the current inflation rate shocked consumers, while many managers, who encountered their first hyper-inflation period, may have found it as difficult to cope with as their first hangover in college.

The extreme levels of inflation experienced around the world disrupted the entire retailer ecosystem. Due to their central position in the distribution channel, retailers face(d) the difficult task to balance strong wholesale-price increases with a need to retain customer loyalty, and to stay competitive while at the same time preserving the bottom line and shareholder value. Realizing that simply passing on cost increases to consumers, who themselves had become more price-focused and actively considered various smoothing mechanisms to balance their household budget, retailers have (as summarized in Figure 2) experimented with a diverse set of mechanisms to cope with the inflation challenge, some more visible and others more covert. We discuss elements in Figure 2 across this paper.

³ The only exception was China, where respondents most often cited the COVID-19 pandemic as top risk, followed by inflation.

⁴ Tesco CEO Ken Murphy, for example, has blamed “unprecedented levels of inflation” in the prices to be paid to their suppliers for the chain’s drop in pre-tax profits (Armstrong 2022), while also Unilever has referred to “unprecedented cost inflation levels” to justify further own price increases (Linsell 2022b).

In this paper, we first review some key takeaways from prior inflation-focused research in the marketing literature, along with insights that can be derived from related studies that considered other causes of disposable-income reductions. However, given that the inflation literature is sparse, while insights from other forms of disposable income reduction may not automatically generalize to the current inflationary setting, we identify various knowledge gaps along with a broad set of questions in need of further research. We do so, in the spirit of the Empirics-First approach recently advocated in Golder et al. (2023) and Gielens (2022b), by identifying several frequently used retailer-initiated coping strategies. We subsequently circle back to relevant prior literature to help with the interpretation of the observed patterns, identify best practices, and warn against potential pitfalls.

WHAT IS INFLATION?

Inflation refers to the rate of increase in prices over a given period of time, typically one year (www.imf.org). Consumers' cost of living depends on the prices of many goods and services and the share of each in the household budget. To measure the average consumer's cost of living, government agencies identify a broad basket of commonly-purchased goods and services, and track the cost of purchasing this basket over time. High inflation happens when most prices are rising rapidly around the same time, resulting in a decline in the purchasing power of money. As such, it differs from increases in the price of a few individual goods or services, which just result in a change in their relative prices (Vandenbroucke 2023).

Periods of high inflation create several challenges. For *businesses*, when their input costs increase, profit margins come under pressure. To offset these higher costs, they have to balance raising their own prices and remaining competitive in the market. To investors, high inflation rates bring along additional uncertainty, which may lead them to require an additional risk

premium. This increases firms' borrowing costs, which could lead them to postpone certain investments and forego a number of growth opportunities (Kalish and Wolf 2022).

To *consumers*, when their nominal income does not increase as much as prices, they become worse off, because they can afford less. In other words, their purchasing power, or real—inflation-adjusted—income, falls. Such reduction in purchasing power may lead to various forms of consumption smoothing (Dutt and Padmanabhan 2011): intertemporal (e.g., postponing some durable-good purchases), inter-category (e.g., more necessities rather than discretionary items), intra-category (e.g., private labels rather than national brands) and/or inter-channel (e.g., in-home vs out-of-home, or shopping at hard discounters rather than at conventional supermarkets).

To *policy makers*, inflation often results in unwanted shifts in a country's income distribution, given that some workers may be able to secure wage adjustments in line with the country's inflation rate, while others may not. Moreover, inflationary environments often cause central banks to tighten monetary conditions. Because of that, firms' borrowing costs may increase further, again leading them to reduce (or postpone) certain investments (Kalish and Wolf 2022), which is likely to culminate in reduced economic growth.

Moreover, in countries such as Australia, New Zealand and the UK where mortgages with variable interest rates are commonplace, higher central-bank interest rates directly lift mortgage interest rates. This puts an additional burden on households with mortgages (e.g., each month hundreds or thousands of dollars or pounds more have to be spent on mortgage interest payments), leading to downward adjustments in spending patterns (Brennah 2023). This, in turn, can again suppress economic growth.

To complicate matters further, multiple inflation figures may play a role: (i) the “official”, aggregate, numbers computed and communicated through various government agencies (and covered in many news articles, especially in high-inflation periods), (ii) the levels actually experienced by individual households, (iii) the levels perceived by those households, and (iv) their expectations about future inflation levels. We expand on these differences next.

Aggregate inflation figures. The official inflation numbers reflect the changing cost of living for an “average” or “representative” consumer. For example, the Consumer Price Index (CPI), calculated by the Bureau of Labor Statistics (BLS), reflects a weighted average of prices for a basket of goods and services representative of aggregate U.S. consumer spending, with the weight of each component reflecting the proportion in which they are sold.⁵ Changes in this index, often expressed as year-to-year changes, are then used to express the inflation rate.

Household-specific inflation figures. However, the proportion in which the various components are bought may differ across households, while the prices they have to pay for the respective goods and services may exhibit regional differences and/or vary depending on the shops they visit. Because of that, some authors (see, e.g., Beck 2022; Kaplan and Schulhofer-Wohl 2017) make a case to focus instead on household-level inflation rates, which reflect the increase in the price level of the basket of goods that a given household actually buys. Looking at household-level inflation rates offers insights into how different households and household groups are confronted with vastly different inflation rates, resulting in dissimilar welfare

⁵ In the euro zone, the Harmonised Index of Consumer Prices (HICP), which is compiled by Eurostat and various national statistical institutes, is used to measure consumer price inflation. The term “harmonised” refers to the common methodology that is used to enhance the comparability between the member states (<https://ec.europa.eu/eurostat/web/hicp>).

implications. Figure 3 illustrates, for example, the wide variation in inflation rates that German households actually experience.

Perceived and expected inflation figures. However, consumers not only adjust their purchasing behaviour because of the *actual* (aggregate of household-specific) inflation rates they are confronted with. Given that also inflation *perceptions* and *expectations* affect the actions of economic actors (e.g., households' saving and consumption decisions), considerable research in psychology, communication science and behavioral economics has looked at how individuals' perceptions and expectations of price changes and inflation are formed (see, e.g., Ranyard et al. 2008; Weber et al. 2022a,b).

A first key insight emerging from that research is that while consumers may have limited ability to store and recall specific prices (see also Estelami et al. 2001), and even succumb to a number of biases in the way in which they form perceptions and expectations of global price changes (Pizzinelli 2021), they do seem to have some feel for, and ability to judge and forecast, inflation.

A second insight is that consumers' *perceptions* of current inflation levels as well as their *expectations* of future inflation levels tend to be higher and more persistent than the actual inflation figures, and are largely driven by consumers' direct experiences, primarily with a few frequently purchased products such as gasoline and coffee. These are then extrapolated to infer changes in the overall cost of living (Pizzinelli 2022). The weights that consumers assign to various price changes in doing so typically depends more on the frequency of purchase than on the various products' expenditure share. Moreover, the price increases that consumers encounter tend to loom larger than price decreases, which may explain the persistent upward bias (D'Acunto et al. 2023). Importantly, price changes for goods offered in the same store that are

not purchased tend not to affect consumers' inflation expectations (D'Acunto et al. 2021). Media coverage and WOM, in turn, tend to serve as social amplification mechanisms that further fuel consumers' inflation expectations (Ranyard et al. 2008).

A third recurring finding is the substantial cross-sectional dispersion in households' inflation expectations. This can, as indicated before, be attributed to the differing exposures to increasing prices resulting from their different shopping baskets, but also to heterogeneity in households' prior experiences with inflationary periods (e.g., whether or not they personally experienced the high inflation levels of the 70s and 80s), variation in consumers' cognitive abilities (D'Acunto et al. 2019), and a host of demographic characteristics, such as gender, age and ethnic background (D'Acunto et al. 2023).

Future research. Clearly, inflation is not a singular construct: it exists at different levels of aggregation (overall vs household-level) and can be measured through objective (actual changes in prices) or subjective (perceived or expected changes) data. More research is needed to determine whether macro (aggregate) and micro (household-specific) inflation influence shopping outcomes differentially. If so, do these differences mimic the ones observed by Scholdra et al. (2022) between (macro-level) business-cycle fluctuations (which primarily affect shopping-basket allocation decisions) and (micro-level) personal-income changes (which mostly cause purchase-volume adjustments)? And are certain age cohorts (e.g., millennials for whom this is the first time they experience high inflation) and/or income groups (e.g., the less affluent) influenced more by some inflation constructs than by others?

Another important avenue is how mortgage payments -which for many households is the single-largest expenditure class- affect household spending decisions. Especially in countries with predominantly variable interest rates, inflation may create strong domino effects: high

inflation levels → rise in central bank interest rate to prevent the economy from overheating → corresponding rise in mortgage rate → steep increase in mortgage payments → presumably strong effects on household expenditure patterns along various dimensions. The latter effects, where there is no marketing or retail research we know of, offer rich opportunities for academic research.

KEY TAKEAWAYS FROM PRIOR MARKETING RESEARCH

Prior marketing research that *directly* focuses on the implications of high inflation rates is limited. Often, inflation is merely treated as a nuisance factor, which is accounted for by including the inflation rate as a control variable (see, for example, Golder et al. 2013), or by working with inflation-adjusted variables (e.g., Deleersnyder et al. 2009; Mela et al. 1997).

The few studies that explicitly looked at the substantive implications of increased inflation rates considered inflation's impact on, respectively, consumers' (i) price knowledge (Estelami et al. 2001), (ii) price fairness perceptions (e.g., Bolton et al. 2003), and (iii) price sensitivity (Bijmolt et al. 2005). Other research offers (iv) indirect insights into how inflation may impact consumers. We discuss each aspect next.

Price knowledge. High inflation levels can be seen as a threat to consumers' welfare, and therefore provide an incentive to pay closer attention to, and elaborate more on, price information, which could improve consumers' *price knowledge* (Jacoby and Olsen 1977). On the other hand, economic studies established a positive relationship between the inflation rate and the price variance in markets (see, e.g., Parks, 1978), which may hamper consumers' ability to accurately learn and utilize price information. Moreover, inflation-induced price instability reduces the diagnostic value of prices to consumers (Ball and Romer 2003), which may result in a reduced willingness to learn and process price information (Grewal and Marmorstein 1994).

Following this reasoning, consumer price knowledge would suffer in inflationary environments. Using a meta-analytic framework that synthesized 297 previous price knowledge studies from 27 publications, Estelami et al. (2001) found a positive correlation between the average inflation rate in the 3 years prior to a study's publication date and the average recall error reported in the study, suggesting that indeed consumer price knowledge suffers in inflationary environments.

Price fairness. Several studies have shown that *perceptions of price unfairness* give rise to consumer resistance to price increases and result in decreased profit to the firm (see, e.g., Campbell 1999; Kalyanaram and Winer 2022). Bolton et al. (2003), in a series of experiments, showed how consumers, when faced with rising prices over time, tend to underestimate the role of inflation, which in turn will prompt an overestimation of seller profits, a perception of unfair pricing, and suspicions about vendor price gouging. Moreover, consumers often fail to take the full range of vendor costs into account (Bolton et al. 2003), and while they may be understanding (forgiving) of a price increase that is commensurate with increased vendor costs (e.g., increased commodity prices), this is less so when the locus of the cost increase cannot be easily linked to the specific offering, such as rising overhead costs (Bolton et al. 2006). Bolton et al. (2003) further found that consumers tend to under-estimate the savings rate that would be needed to compensate for inflationary price increases, which may have dire consequences when consumers are planning for an important (e.g., durable goods) future purchase.

Price sensitivity. Prior research has looked at inflation's impact on consumers' *price sensitivity*. On the one hand, it has been argued that since consumer price knowledge of prices is lower in times of higher inflation (Estelami et al. 2001), consumers will be more prone to paying whatever prices are charged (Shamir 1985), leading to a less elastic demand. Alternatively, one could argue that high inflation rates, and the media attention paid to the price attribute, will make

consumers more aware of, and sensitive to, price changes. Consistent with the latter prediction, the meta-analytic findings of Bijmolt et al. (2005) revealed a significant magnitude-increasing effect of inflation on price elasticity ($p < .01$). This effect was found to be strong, with an increase of 5.6 percentage points in the yearly inflation rate predicted to lead to a percentage point increase in the price elasticity magnitude.

Indirect insights into how inflation impacts consumers. Even though the implications of high inflation rates have rarely been the focal point of attention, some *indirect* insights can be obtained from other settings that put pressure on consumers' spending ability, such as economic recessions (see, for example, Dekimpe and Deleersnyder 2018 for a review), currency crises (Dutt and Padmabhan 2011) or rising gasoline prices (Ma et al. 2011; Gicheva et al. 2010). Recurrent conclusions from these studies are (i) that disposable-income reductions often lead to consumption smoothing, not only across time but also between channels, categories and brands, (ii) that these changes tend to be asymmetric (quick to materialize yet slow to disappear) and partly permanent, and (iii) that typical supply-side adjustments such as reduced national-brand advertising and innovativeness may amplify (rather than attenuate) some of these customer (demand-side) reactions. Importantly, the source of the disposable-income reduction has a considerable impact (e.g., business-cycle expansions/contraction versus individual-level income gains/losses (Scholdra et al. 2022) as well as whether one considers broad business-cycle contractions versus category-specific (gasoline) price hikes (Ma et al. 2011).

Future research. Future research should try to uncover how inflation (at different levels of aggregation and for different levels of objectivity/subjectivity) affects consumer retail shopping decisions, what part, and why. This research can capitalize on the current inflationary environment that coincides with the era of big data where many consumer purchase decisions are

recorded automatically (Dekimpe 2020). Such data were not available the last time inflation reached double digits in the 70s and 80s, offering a unique opportunity to quantify (the relative contribution of) different consumption-smoothing mechanisms. Similarly, it not only becomes possible to compute much more accurately (and faster) household-specific inflation rates, but also to assess whether the increased price sensitivity documented in Bijmolt et al. (2005) originates mostly from an increased regular-price elasticity or an increased promotional elasticity, whether certain promotional mechanisms (e.g., bundling, quantity discounts) become more/less effective in inflationary environments, or whether the promotional framing (in absolute versus relative terms) should be adapted to the inflationary regimes customers experience. Similarly, more research is needed to assess whether consumers' existing channel-category associations (Inman et al. 2004; Bonfrer et al. 2022) will prevail in high-inflation periods, and what inflation-linked price increases will result in the strongest revision of a retailer's overall price image. When a retailer increases its PL prices, is it better to do so in the budget, standard or premium tier, and are there certain "lighthouse" categories (Lourenço et al. 2015) where price increases should be avoided?

From a policy point of view, more research is needed on how policy makers may best craft their communication (e.g., more accessible language) to reach a wider audience (e.g., through social-media channels) and/or to reduce certain upward biases in the general public's inflation perceptions and expectations. Consumers learn about price changes and inflation both from direct exposure to prices, and indirectly through (social) media coverage and word-of-mouth channels (Ranyard et al. 2008). It is also unclear to what extent a consumer's stronger online presence (or share of online buying) will lead to more accurate inflation assessments

because of easier price comparisons, or to a quicker and more widespread dissemination of various misconceptions through online channels.

DO THESE INSIGHTS GENERALIZE TO THE CURRENT SETTING?

A case could be made that some of the earlier described consequences of disposable-income reductions will also reveal themselves in the current high-inflation period. In a recent McKinsey & Company study (Charm et al. 2022), for example, 74% of the surveyed consumers reported that the high inflation levels had led them to trade down their consumption patterns, not only by postponing certain purchases (44%), but also by switching retailers (37%), switching to lower-priced brands or private labels (26%), or changing quantities/package sizes (60%). These findings suggest that consumers execute all forms of consumption smoothing in response to inflation, as could be expected. However, we note that survey data do not necessarily correspond with actual behaviors, so future research needs to verify these figures.

On the other hand, there are also many unique features to the current post-COVID high-inflation setting that could make it hard to automatically transfer these previous insights. First, in the wake of the COVID-19 pandemic, many governments handed out cash to millions of households (Kalish and Wolf 2022). While part of that money was spent quickly (adding to the excess demand that contributed to the inflation spike), another part was set aside by consumers. Because of the resulting household cash reserves at the begin of the inflationary period, the initial household reactions to inflation may have been much more gradual than documented in previous business-cycle studies or have manifested themselves with some delay (Alldredge et al. 2022). In addition, during the pandemic, shopping patterns changed with a strong increase in online buying (Gielens 2022a) and a sharp reduction in out-of-home food consumption (Verhoef et al. 2023). Not only is it unclear to what extent these changed patterns will persist in the future,

it also makes it more difficult to establish the most relevant benchmark year to compare current numbers with. For example, compared to 2021, we see, in spite of inflation, a reduction (or at best a very small increase) in many CPG value sales, but a very healthy growth when compared to 2019 (Herbert 2022).

In addition, compared to earlier high-inflation periods (as observed in 1974 and 1980), a very different retail landscape has emerged, which may again prevent straight generalizations. First, online shopping made price comparisons much easier, which can lead to higher increases in price sensitivity than found before. There is also a much larger hard-discounter presence, characterized by a clear price focus and a much more stringent cost-control mindset (Steenkamp and Sloot 2019; IPLC 2022). Because of that, suppliers may find it much harder to pass on their own (e.g., commodity-price) cost increases.

INSIGHTS FROM AN EMPIRICS-FIRST (EF) APPROACH

The high inflation figures confronting consumers and managers result in (i) a setting of high societal and managerial relevance, (ii) with several novel (unique) features, and (iii) a fairly limited, often tangential, prior literature. In addition, while business analysts have been keen to provide laundry lists of remedies to “shock proof one’s business” (McKinsey & Company 2021), “survive the cost crisis” (IPLC 2022) or “combat inflation with advanced pricing tactics” (Deloitte Development 2022), it is interesting to see that several of the claims or recommendation that are put forward are inconsistent or contradictory. For example, while some see a new reality of more promotions (Loeb 2022), others claim that supermarket discounts have become hard to find (Kang 2022 2022). Similarly, while some suggest that firms should adjust their pricing strategy to better account for consumers’ increased price sensitivity

(IntelligenceNode 2022), others recommend adjustments to their decreased price sensitivity (NielsenIQ 2022).

Because of these observations, an EF approach is apt to arrive at relevant marketing insights (Golder et al. 2023). Focusing on the CPC sector, we first document empirically the extent of price changes and contrast the direction and size of these changes across a number of different settings, followed by a discussion on the extent of consumers' consumption smoothing. Next, we identify frequently-used retailer-initiated strategies to safeguard their relative position and/or profitability. We each time relate these observations to prior literature to evaluate the soundness of some of these practices and identify potential pitfalls.

Extent of price changes

Figure 4 summarizes price change in around 900 CPG categories from five Western-European countries.⁶ Across categories, prices increased by close to 5% between 2021 and 2022. Despite price increases in many categories, the corresponding *value* sales hardly increased (and often decreased) in that period, reflecting a reduction in *volume* sales. However, when contrasting the 2022 value sales with their 2019 pre-pandemic levels, a very different picture emerges, with a healthy value growth. In Western Europe, for example, the value sales of packaged (frozen) food decreased with 3% (0.4%) between 2021 and 2022, but using 2019 as benchmark year, a growth of 19.7% (18.7%) is observed (Europanel 2022c).

Apart from an overall price increase, Figure 4 displays considerable heterogeneity in both the size and direction of the price changes. For a non-negligible number of categories, average prices declined. Interestingly, the categories where prices increased the most were often higher household-spend categories with a high penetration and purchase frequency such as cooking oils,

⁶ Germany, Italy, the Netherlands, Spain and the United Kingdom.

pasta and butter, and were quite similar across countries (Europanel 2022a). Low (or negative) inflation categories, in contrast, often represented lower household-spend categories such as berries and marzipan (Beck 2022).

This cross-category variation in inflation rates complicates comparisons further. Figure 5 considers the price evolution for some major category types in Western Europe and shows how household (10.8%) and personal-care (4.1%) categories experienced a slower value sales growth compared to their pre-pandemic levels than some other category types (e.g., the aforementioned 19.7% for packaged food). However, this difference is largely due to the smaller inflation rate that household and personal care categories experienced (Europanel 2022c).

Apart from these cross-category differences, there is also considerable heterogeneity between different *brands* within a given category and between different *channels*. The increase in price is (on average) higher both for private labels (6.0%) and at discounters (7.4%) (Europanel 2022b,d). Moreover, this not only holds in relative terms, but also in absolute terms. The increase in relative prices is less surprising. When commodity prices rise, wholesalers and retailers of products tend to pass along a portion of the price increase to consumers (Volpe 2014). Given the smaller base price for PLs, any absolute price increase applied equally to the NBs and PLs in a category will lead to higher percentage increases for PLs. However, commodity price increases are more likely to be passed along (and to larger extent) to retail prices by retailers with more market power (Richards 2012). In this line of reasoning, it makes sense that also the absolute input pass-through will be larger for PLs, where retailers have greater control over prices, and at discounters, where the PL proportion is higher and where the shelf space available for NBs is a scarce resource (ter Braak et al. 2013).

An important consequence of this observation is that lower-income households, who have a higher tendency to buy private labels (Sethuraman and Gielens 2014) or shop at discounters (Geyskens et al. 2023), will experience a higher household-specific inflation than others.

Future Research. Directly following from the preceding discussion, the question emerges how much more lower-income households suffer from rising inflation levels than higher-income households and how both types of households change their retail channel and brand choices to mitigate this effect. Similarly, it would be very useful to study to what extent other brand (e.g., market share) and category (e.g., purchase frequency, concentration rate) factors moderate the extent to which cost increases are passed on to consumers, and whether retailers apply different pass-through rules (in absolute and/or relative terms) to their different private-label tiers.

Extent of consumption smoothing

Consistent with extant business-cycle research (Lamey et al. 2007, Lamey 2014), the current inflation-induced reduction in disposable income has (as indicated before) led to both brand switching (towards private labels) and channel switching (towards lower-priced channels such as discounters). Given private labels' and discounters' higher absolute price increase (as discussed before), the total gain that consumers incur through these forms of consumption smoothing may be smaller than expected at first sight.

However, one should be careful to not attribute all retailer share increases to inflation-induced consumption smoothing. For example, even though the UK *value* share of Aldi (+11.3%) and Lidl (+ 13.9%) increased much more than Tesco's (+0.1%), while other conventional retailers as Sainsbury (-2.2%) and Morrison (-2.3%) lost ground (Linsell 2022a), part of this increase is due to their larger price increase, while also their substantial number of additional store openings has played a role.

Future Research. To understand the drivers of consumption smoothing, future research should first measure this behavior in an objective and consistent way across time and households, distinguishing between intertemporal, inter-category, intra-category and inter-channel forms of consumption smoothing. Next, research should analyze a comprehensive set of drivers while controlling for possible confounds such as store openings. Importantly, our earlier discussion focused on various forms of consumption smoothing within the (important) FMCG sector. However, we also need a better understanding of how extreme inflation can lead consumers to adjust the broader allocation of their entire consumption budget across a comprehensive set of spending categories (such as housing, apparel, transportation, education, ...). In this respect, it would be interesting to compare such inflation-induced adjustments to the ones taking place following economic expansions/contractions (studied in Kamakura and Du 2012) or currency crises (studied in Dutt and Padmanabhan 2011).

Retailer-initiated coping strategies

Common retailer-initiated strategies to cope with the inflation challenge center around cost-control actions and a variety of customer-focused support actions. Unfortunately, also some less noble (more covert) actions such as “shrinkflation,” “skimpflation,” and “greedflation” take place, which may seriously undermine customers’ trust and jeopardize retailers’ brand equity.

Cost-control actions

Various cost components in the grocery supply chain (raw materials, food ingredients, packaging, energy, transport & labor) have experienced significant inflation. To maintain their profitability, many retailers have tried to either cut these costs internally, or to pass on the increases to other (up- or downstream) channel parties.

First, many retailers have tried to cut their internal overhead, inventory-holding, and labor costs. Examples include Amazon's plans to delay or cancel several facilities in its distribution network, Co-op's plans to cut 400 jobs in the UK, Target's use of aggressive markdowns to get rid of excess inventories, Austrian retailer SPAR's energy saving efforts by reducing the number of hours it uses its lightning systems, or the decision of FamilyMart, the Japanese Convenience Chain, to use restocking robots for its refrigerated shelves in an attempt to save labor costs (Edge by Ascential 2022).

Others have tried to pass on (part of) the cost increases to their customers. Along these lines, Walmart-owned Sam's Club increased its annual membership fees (Repko 2022), Amazon increased its Prime subscription fee by up to 43% in Europe (Edge by Ascential 2022), and UK supermarket Sainsbury's increased the price for several of its home delivery services (Hughes 2022). Even when consumers feel that it is fair for retailers to raise prices to protect their reference profit (Campbell 1999), and therefore be forgiving of price increases that are commensurate with increased vendor costs (Bolton and Alba 2006), they may become wary when competitors with similar cost increases opt to not raise their prices. Especially attempts to pass on cost increases in more covert ways can backfire. For example, Tesco and Morrison came under fire for the shrinkflation (package-sized reduction without corresponding price decrease) of its own-label ready-meals (Townend 2022). To attenuate negative reactions, especially in times where customer budgets are already under pressure, retailers may be better off to clearly and honestly communicate the underlying reason for the price increase (e.g., increased fuel costs to motivate a raised delivery fee), avoid being the first in the sector to do so, or to couple new benefits (e.g., faster delivery, added content, ...) to the price increase.

Rather than passing on the cost increases to their customers, which could put pressure on their competitive position, retailers also tried to shift the burden to their upstream suppliers. Examples include Amazon's fuel and inflation surcharges on its third-party seller fees, the higher commissions charged by Allegro for sellers on its platforms, or the higher costs charged by Tesco to suppliers who use their primary distribution service (Edge by Ascential 2022). In a recent IPLC survey, 70% of the polled suppliers had tried to negotiate a wholesale-price increase with their retailers, but more than half of them experienced instead a downward cost pressure (IPLC 2022). With many retailers considering assortment reductions as a further cost-reduction technique, and both retailers and manufacturers trying to shift their own cost increases to the other party, price negotiations have become more difficult (IPLC 2022) and conflict delistings (Van der Maelen et al. 2017) more prevalent. Following failed negotiations on how to share the burden of increased raw-material, energy and transport costs, all Nestlé brands were temporarily delisted by the leading Dutch retail chain Albert Heijn (Van Rompaey 2022), while similar issues lead to the temporary delisting of all Mondelēz brands from Colruyt (Van Rompaey 2023), one of the leading Belgian retail chains. Given that conflict delistings often damage the involved parties' firm value (Hermans et al. 2023), one can question the merit of such an escalation.

Finally, to obtain more control over the cost-structure of their private labels while also limiting the possibility of supply-chain disruptions, we see a growing tendency among retailers to vertically integrate (Keller et al. 2022). For example, Ahold Delhaize recently opened the largest wine bottling plant in the Benelux (Neerman 2022), while Lidl is planning a new water processing and bottling plant to supply its UK stores (Johnson 2019). Vertical integration not only offers the premise of direct cost advantages along the supply chain (by eliminating intermediaries and their corresponding margins), but also gives the indirect benefit of better

insights in the truthfulness of supplier requests to increase wholesale prices because of ingredient or energy inflation.

Future Research. As discussed, retailers employ various cost-control strategies to cope with the inflation challenge. More research is needed into the antecedents (drivers) of these strategies and their consequences (outcomes). As for the antecedents of different cost-control strategies, it is not clear what retailer-, channel-, consumer- and competition characteristics lead retailers to opt for internal cost-cutting, passing on costs to consumers or suppliers, vertical integration, or a combination of these strategies. As for consequences of these vastly different strategies, future research could study how they affect a retailer's relationships with upstream suppliers and with customers, how they affect retailer's competitive positioning, and how they alter retailer revenue, cost, profit and stock market valuation.

Customer-focused support actions

Loyalty-program initiatives. To counter the higher switching (defection) probabilities in times of uncertainty, retailers have (i) revamped their loyalty programs, (ii) often linked to their private-label offerings, while (iii) adding various subscription-linked initiatives, often in collaboration with third parties. The French supermarket Intermarché, for example, initiated price reductions on 1,800 private-label products, but only for its loyalty cardholders, while its competitor E. Leclerc introduced an anti-inflation shield where the price inflation on 120 of the most purchased products would be automatically compensated at the checkout, but only for loyalty-card holders (Edge by Ascential 2022). Given that private labels are not available at other retailers, retailers de facto differentiate themselves from their competitors, which may already lead to loyalty to the chain (Ailawadi et al. 2008), an effect they try to amplify by explicitly adding further benefits (e.g., additional price reductions) to their loyalty-card holders.

Other retailers have tried to make their loyalty program more attractive by adding new features. For example, Instacard relaunched its loyalty program as Instacart+ that allowed for Family Accounts as well as exclusive benefits for members of Chase, a partnering grocery delivery service, while Coop Sweden partnered with an electricity provider to offer lower electricity prices for its members (Edge by Ascential 2022). A tendency observed across many retailers is to join (or emphasize their role in) multi-vendor loyalty programs.

Price-guarantee initiatives. Another popular strategy has been to provide price guarantees, which have appeared in a variety of forms: (i) *price-freezing guarantees* (i.e., prices will be kept at a certain level for a certain time period) have been communicated, among others, by Coles (Australia), Carrefour (France & Belgium), and Asda and Sainsbury's (UK), (ii) *ceiling guarantees* (i.e., prices will not exceed a maximum) by Salling Group (Dk) and Poundland (UK), and (iii) *matching guarantees* (i.e., prices will not exceed competitors' prices) by Morrisons and Tesco (UK).

Such practices should be reassuring to consumers who fear further price increases. However, they also come with a number of dangers. First, consumer reports often find their implementation to be inconsistent, which may lead to an erosion of consumers' trust. For example, a well-publicized Belgian consumer report found that while Carrefour promised to sell 1,000 items for less than €1, only 347 could be found on their website, of which more than 100 were out of stock (Testaankoop 2022). Second, matching guarantees often do so vis-à-vis a leading discounter (e.g., Tesco's "Aldi Price Match"). Because of this free publicity as relevant benchmark, the unintended main beneficiary of such actions may well be the discount channel (Steenkamp and Sloot 2019). Finally, especially with price-matching guarantees, there is an

increased danger of price wars, where again the discounter may be the prime beneficiary (van Heerde et al. 2008).

Apart from the aforementioned price-guarantee messaging, which are targeted against competing retailers, there is also an increased use of direct price comparisons between a retailer's private label and various national brands (available in the market or even in the retailer's own assortment). UK based Morrisons, for example, used a variety of in-store communications to highlight the savings consumers would make when buying its own brand toilet tissue rather than the Kimberley-Clark alternative (Edge by Ascential 2022). Because of such practices, we can expect a renewed focus on the NB-PL price differential, which had become smaller in recent years, but could be brought back to the fore.

Assortment-related initiatives. A first, obvious, adjustment to inflationary pressures that many retailers made was an even greater focus on their private-label offerings, which could range from a PL assortment expansion to a more prominent positioning of existing SKUs. However, other assortment adjustments have been made as well to better cater to their inflation-affected customer base, such as (i) a more extensive line of refillables, (ii) more (PL and NB) offerings with a focus on energy-saving attributes, as well as (iii) a more extended price-package size architecture with broader price and package-size brackets. As for (i) refillables, Tesco, for example, has experimented with a refillable-goods aisle (Nott 2021). As for (ii) energy-saving attributes, UK supermarkets that listed P&G's new dish-washing product Fairy, which promises to kill germs and clean equally well in cold water, claim to have attracted a considerable number of new customers trying to save on their energy bill (Gruffydd 2022). In terms of (iii) price brackets, we see the simultaneous use of lower price-entry points (e.g., with a more elaborate budget PL line) as well as increased efforts to engage the premium segment (e.g., by expanding

the premium PL line). At the same time, smaller-sized or even single-serve packages (which give consumers the option of smaller out-of-pocket expenses) are being offered alongside with a more extensive set of bulk or multi-pack lines.

CSR initiatives. The inflation crisis has inspired multiple retailers to adjust the content of their communication messages to reflect the challenges that their consumers are encountering,⁷ as advocated in Kumar and Pauwels (2020). Moreover, the crisis has also led to a variety of targeted support initiatives, such as interest-free micro-loans to shoppers struggling to pay their food bills (UK discounter Island), donations to charity following certain purchases (Tesco's convenience banner OneStop), extended delivery services to caregivers of the elderly (Walmart), and extended discounts to social-care workers (ASDA).⁸

Future Research. While the literature has studied some of the customer-focused support actions such as price guarantees (e.g., Moorthy and Winter 2006), they have not done so in a high-inflation environment. In an environment with economy-wide rising prices, the type of anchor the price guarantee is linked to (e.g., own price vs competitor price) may perform differently than in an environment with stable pricing. New research could shed light on the impact of different types of guarantees on customer price perceptions and customer loyalty, potential boundary conditions (e.g., the retailer's price positioning), as well as competitive reactions and financial retailer outcomes.

Other actions that retailers undertake to shield customers from high inflation levels have not seen any research yet, including some of the new loyalty-program and CSR initiatives

⁷ Examples of such messages include “We won't raise our prices to make our offers look better” (Sainsbury's), “We want you to spend less with us” (Tesco), along with explicit attempts to position oneself as anti-inflation actors through, for example, the introduction of an “anti-inflation shield” (E.Leclerc) or promoting an “anti-inflation selection” (Carrefour).

⁸ More details can be found in Edge by Ascential (2022).

discussed above. Therefore, it is an open and important question whether such (costly) initiatives truly enhance customer loyalty and how they impact bottom-line retailer profit.

The assortment-related initiatives also feed into some rather fundamental questions: in response to inflation, do consumers want to minimize their out-of-pocket expenses (and therefore switch to smaller-sized packages) or do they want to minimize per-unit prices (and therefore switch to bulk items and refillables)?

Finally, even though high inflation levels and the associated cost-of-living challenges provide a fertile ground for value (budget) products, sales of various premium products also surged (Hearing 2022). Indeed, inflation does not hurt everyone equally, and some consumers (e.g., some business owners) may even benefit from rising prices. Also, consumers may from time to time feel a “frugal fatigue” and crave to indulge themselves with something more expensive (ter Braak et al. 2014). To retailers, it becomes important to adequately balance value products (which will be in high demand with a large fraction of the customer base) and premium products (which typically have a higher margin) in their assortment, not only in terms of the NB offerings on their shelves but also in terms of their PL tier representation.

More questionable initiatives

Shrinkflation. Rather than passing on cost increases through higher prices, firms can also opt to reduce the package size while holding the item price fixed. This indirectly increases the unit price (price per equivalent unit of measurement) by shrinking the package size, which has led to the term *shrinkflation*. Firms often opt for this strategy when they expect consumers to be less sensitive or inattentive to changes in package sizes than to corresponding item price changes. Even though lab studies have found that consumers react negatively *once they recognize* package shrinkage (Kachersky 2011), Lee (2022) found, across a broad set of

categories, very little quantity response to size reductions during the low-inflation 2006-2018 period. Given that price sensitivity has been found to increase considerably during high-inflation periods, it should come as no surprise that quite some manufacturers and retailers have recently opted for this more indirect way of recouping cost increases.

Skimpflation. A related phenomenon is “*skimpflation*,” which refers to the situation where firms – in response to higher costs – reduce the quality of a good/service. Even though prices can be kept at the same level as before, customers effectively have to spend more to obtain the same level of service or product quality as they did before. While most visible in terms of service quality (e.g., longer waiting times at checkout due to personnel cuts), there is also a fear that the quality of certain ingredients may be reduced (e.g., artificial coloring instead of natural coloring), which could lead to a higher incidence of product-harm crises.

Because of their increased prevalence, media attention to these phenomena has intensified considerably, and consumers have become more sensitive to such more covert forms of value depreciation. In a July 2022 survey, for example, 62% of the respondents claimed that they would stop patronizing firms who practice shrinkflation and/or skimpflation tactics to cut costs (Gartner 2022).

Greedflation. Retailers’ equity can also be tarnished by accusations of “*greedflation*”, where one is blamed not only of “profiting” from, but also deliberately prolonging, the inflation climate. The notion is that retailers (and manufacturers) continue to raise their prices more than their costs have risen, and thereby achieve excess profit margins. While traditionally a wage-price spiral (where price increases give rise to higher wage demands to compensate for employees’ reduced purchasing power, after which companies raise their prices again to absorb the higher labor costs), was seen as key impetus to intense and prolonged inflationary waves,

there is a growing fear among various government officials, union leaders and consumer advocates that this spiral has become replaced by a profit-price spiral (Van Hamme 2023; Wilson 2023).

The data seem to underline these fears for greedflation: the current wave of inflation in the US has coincided with a steep increase in profit margins of S&P 500 companies (Scaggs 2023). It has not coincided with a sharp rise in the unit cost of labor, which has climbed but not nearly as fast. Unlike in previous periods of inflation, when rising inflation meant rising wages and shrinking profits, firm profit margins appear to have benefited from inflation over the past two years. Wages have risen in nominal terms, but profits have risen even more amid falling real labor costs (Scaggs 2023).

While greedflation may result in short-term profits for retailers engaging in the practice, it can lead to long-term losses not only for the chain itself, but also for the industry as a whole. Indeed, greedflation can damage consumer trust and loyalty, leading to a loss of customers and a decline in patronage and share of wallet. However, it can also lead to the government taking regulatory action, which can create financial losses for the industry.

Future Research. While some research has looked at shrinkflation (Keller and Guyt 2023; Lee 2022), it has done so in a non-inflationary environment. Also, while consumers may not appreciate paying the same for reduced quantity, it may be different if they realize shrinkflation may help them to reduce their calory intake in case of sugary products (Keller and Guyt 2023). It is also not clear which of the three evils (inflation vs shrinkflation vs skimpflation) consumers are most forgiving of. In other words, if they had to choose, would they prefer inflation (e.g., paying 10% more for the same quantity), shrinkflation (e.g., paying the same for 10% less quantity) or skimpflation (e.g., paying the same for 10% lower quality)? The

answer is probably as usual “it depends,” but a large role is likely to be played by how overt or covert the company markets these three variations. While there is little covering up in classical inflation as prices are typically communicated clearly, package sizes changes can be more covert (e.g., package surface area stays the same, but weight is reduced) and quality changes even more so (e.g., replacing an expensive unfamiliar ingredient by a cheaper, equally unfamiliar ingredient).

Corporate greedflation is likely to be met with strong consumer outrage, but it is not clear to what extent consumers walk the talk and switch away from retailers and manufacturers who profiteer from the inflationary environment by substantially increasing their (absolute and/or percentage) profit margins. Similarly, it is not obvious to what extent concurrent inflation-related CSR initiatives can counter the reputation loss that retailers may incur from shrink-, skimp-, or greedflation infringements, nor how retailers should best respond to any (justified or not) accusations of such transgressions (e.g., Brooks 2022; Inman 2023).

CONCLUSION

Inflation is back – with a vengeance. Following the highly disruptive years of the pandemic, the world has experienced inflation levels not seen for many decades. A “perfect storm” of underlying causes includes expansionary monetary and fiscal policies during the pandemic, pent-up demand, supply-demand imbalances, and commodity-driven cost pressures due to Russia’s invasion of Ukraine, all conspiring to steeply increase consumer prices levels around the world. While current inflation levels are not unprecedented, academic research has very little to say about how to conduct marketing in inflationary times, and that is why we have presented an overview of what we know, what we don’t know and what we argue we should know in the form of a research agenda.

Based on what we observe in the real world of retailing and marketing (Van Heerde et al. 2021) and inspired by an empirics-first approach (Golder et al. 2023), we identified a number of retailer inflation-coping strategies. These strategies focus on the entire spectrum of retailing. On the cost side, strategies include internal cost cutting and vertical integration, but also passing on increased costs to consumers and to suppliers.

In fact, some retailers have been more than capable in passing on costs and actually thrived in the current inflationary environment, strongly lifting profit margins. Depending on one's perspective, one can label this behavior as greedflation (profiteering, and even contributing to the inflation crisis), or smart business acumen leading to shareholder value creation in difficult times. No matter one's perspective, greedflation is a highly emotive phenomenon with unknown short-term and long-term consequences both customers' trust and shopping behavior and retailers' brand equity.

On the marketing-mix side, several retailer inflation-coping strategies focus on the P of price. While (as mentioned before) some retailers pass on costs to consumers, others try to soften the blow of soaring inflation for consumers by loyalty program initiatives and price guarantees. To show empathy to the customer's plight, some retailers have embarked on social responsibility initiatives, which can be seen as being part of the P of promotion.

Inflation-coping retailer strategies are not limited to the Ps of price and promotion only. In some strategies, the P of product is adjusted, through changes in package sizes (shrinkflation), ingredients (skimpflation) and assortments (adding bulk products with lower cost per weight or volume, or adding single-serve products with lower cost per unit).

These highly intriguing retailer inflation-coping strategies we observe naturally begs the question: how do they affect performance metrics that retailers care about? As shown in Figure

2, the impact of these retailer inflation-coping strategies could be felt across a range of performance metrics, ranging from supplier-relationship, customer and competitor metrics to financial metrics. Measuring the effects of retailer inflation-coping strategies on these and other retailer performance metrics represents a trove of exciting research opportunities full of relevance to retailers, consumers and policy makers.

This is especially the case as the current era of high inflation levels coincides – for the first time in history - with the era of big data where we can readily observe both the focal independent variables (here: retailer inflation-coping strategies) and the retailer performance metrics at very fine levels of granularity (Kumar and Vankatesan 2021). Obviously, to arrive at approximate causal effects, researchers must try to capitalize on quasi-experimental variation in the data (Goldfarb et al. 2022).

These same big data (as well as more traditional experimental data) facilitate research that can address highly relevant questions at the consumer level. We believe there is especially scope to understand how inflation felt at the individual household level (rather than aggregate inflation) affects consumer price metrics (price knowledge, fairness and sensitivity) and various forms of consumption smoothing: shifting consumption over time, between or within categories and between retail channels.

We hope that this article will inspire cutting-edge research into the consumer, retailer and marketing consequences of soaring inflation, a worldwide problem that affects us all and is directly linked to the core role of retailing in the supply-chain channel.

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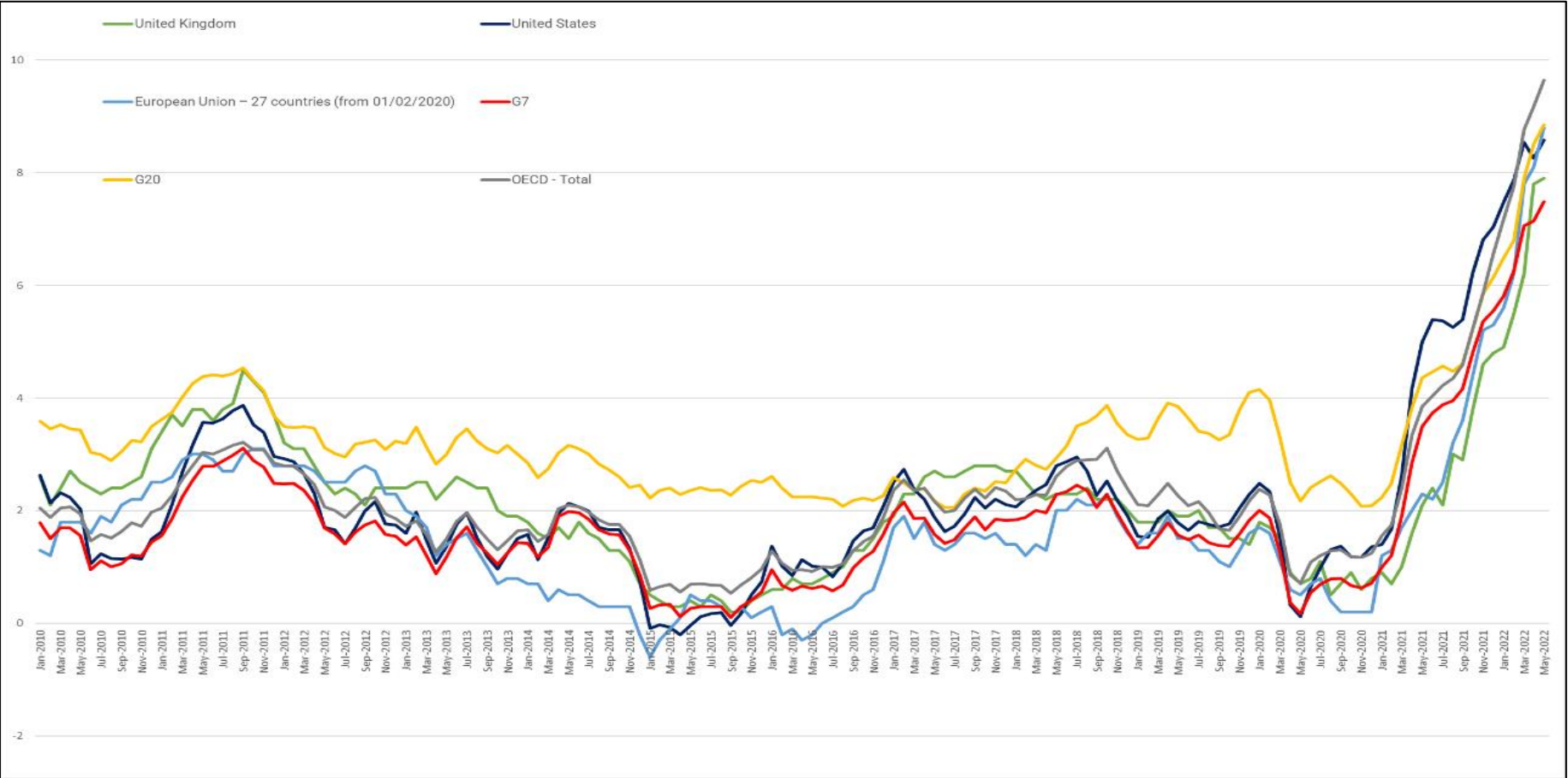
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Figure 1: Year-on-year inflation rate (%)



Source: Edge by Ascential (2022)

Figure 2: The Effect of Inflation on the Retailer Ecosystem

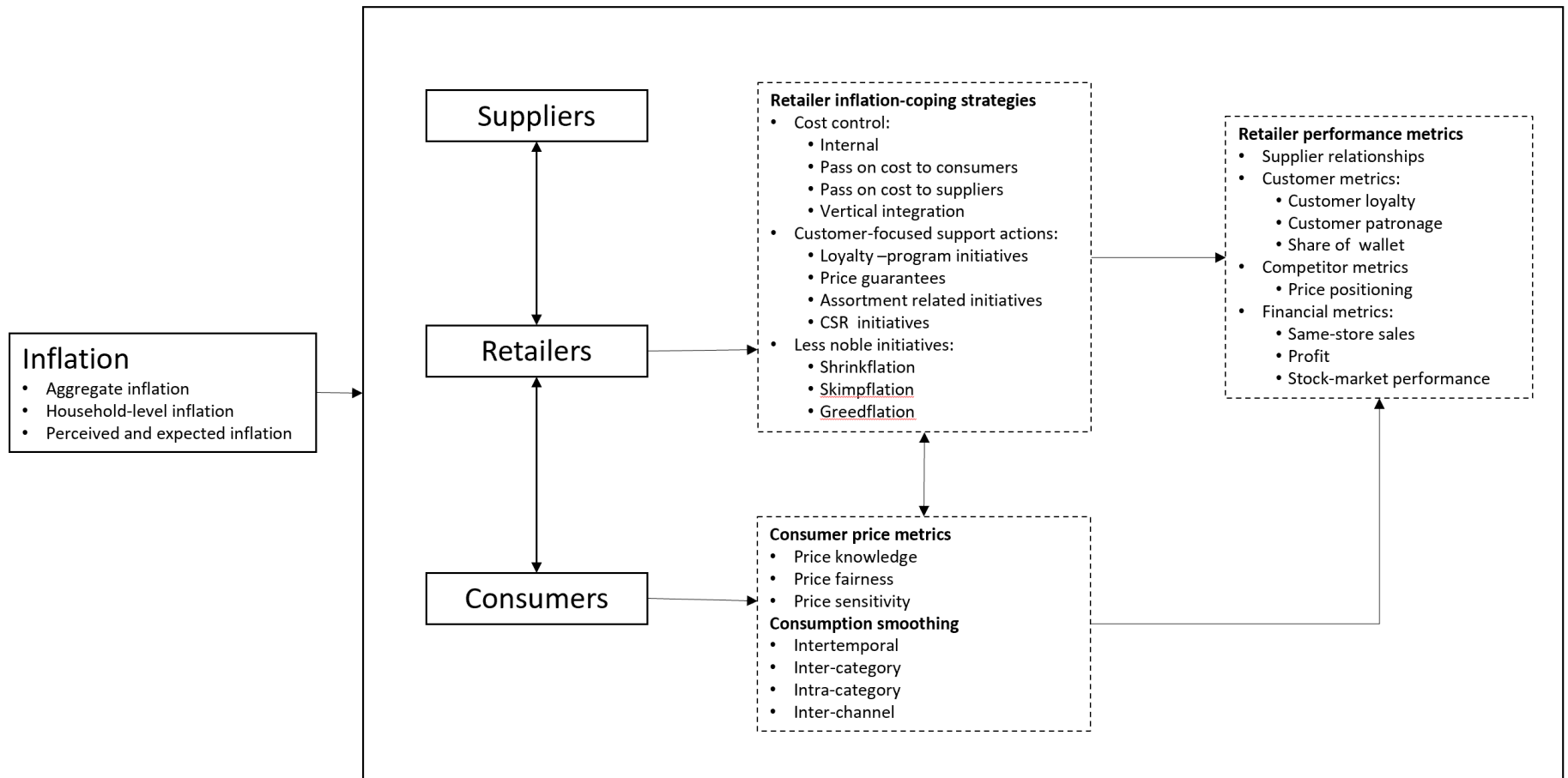
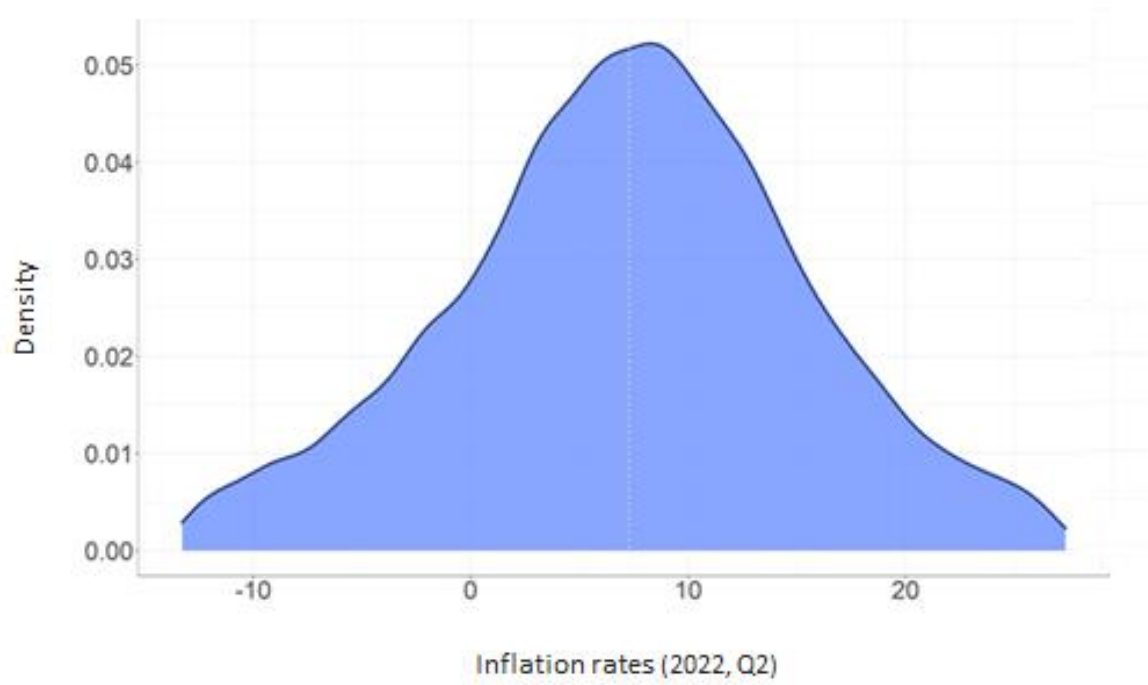
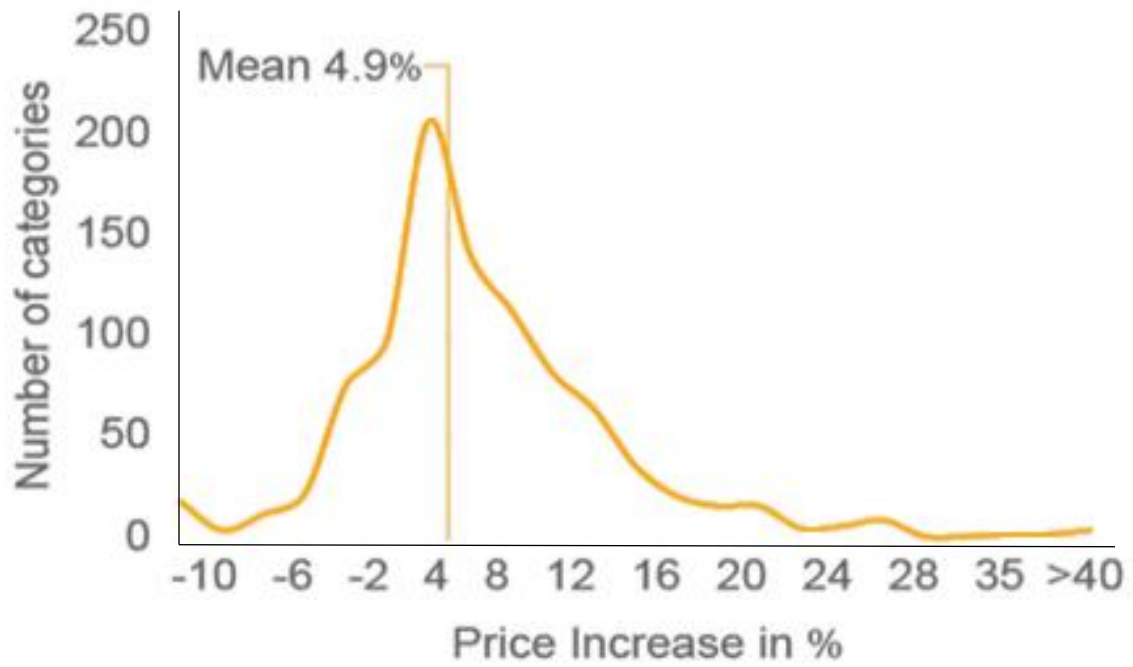


Figure 3: Heterogeneity in German household-level inflation rates



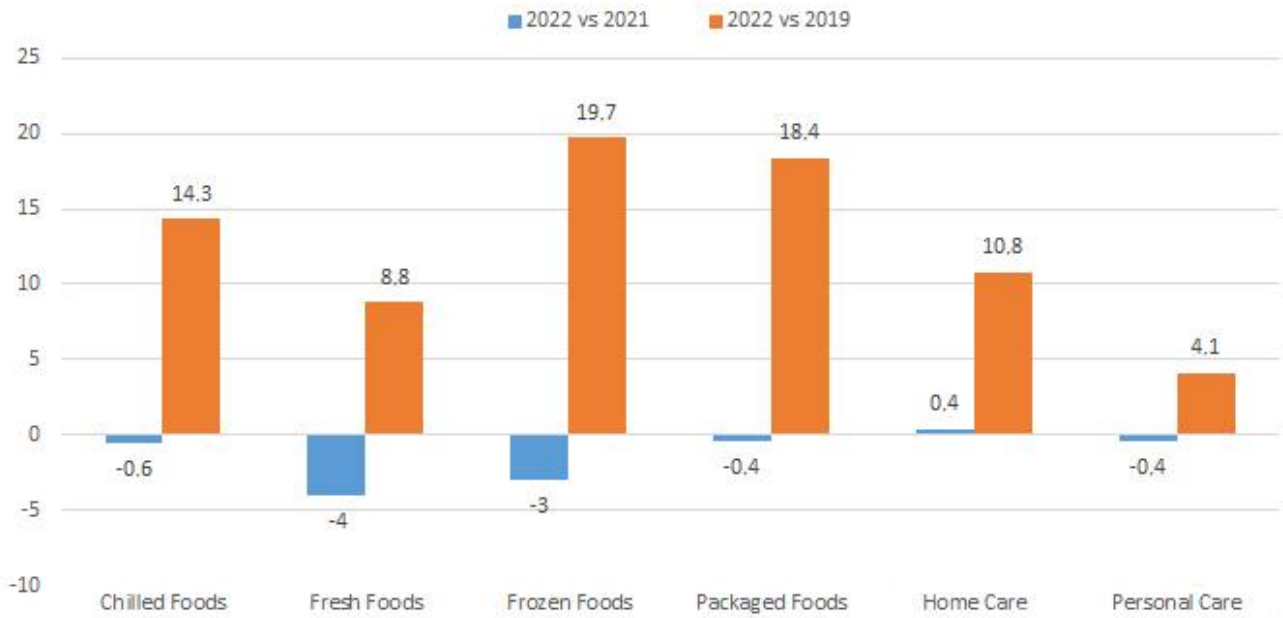
Source: Beck (2022)

Figure 4: CPG Price Changes First Half of 2022 vs 2021



Source: Europanel (2022d)

Figure 5: Price Changes (%) across Key Category Types



Source: Europanel (2022d)