



Shrinkflation across borders: examining Japan's response and global implications amid rising inflation

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Abstract

This study examines the phenomenon of shrinkflation in Japan, focusing on its origins, implications, and role in the broader inflationary context. As a response to rising production costs, shrinkflation enables producers to maintain competitiveness by avoiding direct price increases and limiting consumer backlash. The study highlights Japan's historical experience with deflation and price rigidity, which contributes to heightened consumer sensitivity to price changes. While often perceived as unfair by consumers, shrinkflation is preferred to direct price increases, particularly in the food sector, where it can help reduce waste. The research suggests that transparent communication about price changes builds consumer trust and brand loyalty, making it a more sustainable strategy than shrinkflation. The findings point to the importance of taking cultural and economic conditions into account when analyzing shrinkflation and underscore the need for further research into its effects in different countries and within Japan's Consumer Price Index.

Keywords Hidden inflation · Price strategies · Price transparency · Socio-economic conditions in Japan · Behavioral economics

JEL Classification D12 · E31 · M31

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1 Introduction

In recent years, global events such as the war in Ukraine have caused inflation to rise significantly around the world. This includes Japan, which has been on the verge of deflation or in a very low inflation environment for almost 30 years. However, inflation does not always manifest itself in the economy as an increase in the price of goods and services. One of the less obvious but significant forms of inflation is the so-called hidden inflation (Hussein et al. 2024). It appears as a reduction in size or quality while the price remains unchanged, effectively raising real prices. This leads to an increase in real prices because we can buy smaller or lower quality goods for the same price. While disguised inflation is not a new phenomenon in economic theory, the term ‘shrinkflation’, which specifically refers to the shrinkage of products while maintaining the original price, has only been used since around 2013 (Melmiès, 2024; Rojas et al. 2024). This phenomenon has significant economic implications because it is difficult to measure using traditional indicators such as the Consumer Price Index (CPI). This difficulty can lead to distortions in macroeconomic indicators and have a significant impact on economic policy decisions, such as the indexation of pensions or wages, which are often linked to official inflation statistics.

Although “product shrinkage” occurs around the world, Japan is one of the countries where “shrinkflation” is particularly pronounced (Ng et al. 2022). The phenomenon is particularly prevalent in consumer goods such as food and beverages (Budianto 2024). Japan’s peculiar economic conditions, including prolonged low inflation, create a unique environment for studying shrinkflation (Ng et al. 2022). Scholarly literature on shrinkflation remains limited on shrinkflation in both Japanese and English, especially in peer-reviewed academic sources, even though shrinkflation has become a widely used pricing strategy in consumer markets. There is a lack of a widely used definition of the phenomenon, as well as a detailed analysis of its implications and specifics. This research gap prompted the authors to focus on the issue of “shrinkflation” in the Japanese context. The purpose of this paper is not only to expand the knowledge of the phenomenon of shrinkflation, but also to examine its terminological and socio-economic aspects in Japan. In addition, understanding the dynamics of shrinkflation in Japan can provide valuable insights for other countries facing similar challenges by offering a deeper insight into consumer behavior, pricing strategies, and the broader socioeconomic consequences of this phenomenon. This research contributes to debates on inflationary trends, consumer rights, and sustainable economic practices.

Three main research questions were posed in the context of the paper: (i) what terms are used in connection with shrinkflation in the Japanese context; (ii) what factors are driving Japanese manufacturers to shrinkflate; and (iii) how do Japanese consumers perceive shrinkflation? The answers to these questions should not only provide a comprehensive picture of shrinkflation in Japan but also serve to understand the socio-economic characteristics of the country. While the phenomenon of shrinkflation has been most pronounced in Japan, it can have important implications for other countries. In Poland, for example, consumers are sensitive to price changes, which means that manufacturers may consider introducing shrinkflation as an alternative to traditional price increases. Against the backdrop of rising food and energy

costs in Poland, shrinkflation may become a common phenomenon, especially in sectors where profit margins are tight. A study of shrinkflation in Japan can therefore provide a valuable reference point for Polish producers and decision-makers facing similar challenges in the near future. Moreover, in the new era—the era of financialization, in which households increasingly finance their consumption by taking on private debt, rather than relying on government debt (Pellandini-Simányi 2020). Before the nineteenth century, for example, clothes and furniture retained their value over time, allowing them to function simultaneously as a consumer good and as a form of savings, much like homes today. People bought them with their long-term resale value in mind. This trend reflects the penetration of financial logic into consumer markets, reflecting a shift from a long-term investment mentality to a more immediate, consumption-driven logic in modern-day consumer behavior. It is only with the advent of mass production and shorter product cycles that this investment rationale has been replaced by a more aesthetic and hedonistic approach to consumer goods. In this context, daily consumption may have become more, not less, financially motivated (Pellandini-Simányi 2020).

Japan has also undergone neoliberal reforms. Since the 1990s, while fighting a prolonged period of economic stagnation, Japan has implemented American (or Anglo-American) style economic and financial reforms, including Hashimoto's financial "big bang," Koizumi's structural reform, and Abe's "third arrow" (i.e., growth strategy). While it is true that these reforms transformed the Japanese economy, they did not lead to a market-based financial system. This was despite the call to "shift from saving to investment" and for large corporations to accumulate reserves that are not invested (Hattori 2020).

2 Literature review

2.1 Inflation types, effects and impact on the economy

Inflation is a macroeconomic phenomenon associated with a sustained increase in the price level, which leads to a decrease in the purchasing power of money (Filipović, 2024). There are three basic types of inflation: moderate inflation (up to 10% per year) is considered stable and harmless; rampant inflation (tens to hundreds of percent per year) disrupts the economy; and hyperinflation (more than 1000% per year) can lead to the collapse of the monetary system (Rahman et al. 2022), as observed in Zimbabwe (Chivige and Sheefeni 2022; Miller and Ndhlela 2022).

Inflation affects both nominal and real variables—nominal wages tend to rise as prices rise, but real wages, which take inflation into account, determine the real purchasing power of the population (Akpolat 2024). The costs of inflation include increased transaction costs (known as the "cost of carrying"), expenditures on price changes (menu costs), tax distortions, and misallocation of resources due to price volatility (Weber and Wasner 2023). While high inflation is destabilizing and reduces economic efficiency, moderate inflation can stimulate economic growth by encouraging higher consumption, thereby supporting aggregate demand (Khan 2022). Conversely, deflation, when the price level falls, can lead to postponed consumption,

lower investment, and a subsequent economic slowdown (Khan 2023), as has long been observed in Japan (Zukhra and Kamilova 2024).

2.1.1 Japan's deflation: from an economic bubble crisis to a lost decade and attempts at economic recovery

Despite a number of serious economic problems after World War II, including high inflation and limited productive capacity, Japan managed to become one of the world's most advanced economies in the 1950s (Flath 2022). Notable was the period between 1955 and 1973, when the Japanese economy achieved an average annual growth rate of nearly 10% in real gross national product (GNP). This growth was so significant that the period is still known today as the "*Japanese economic miracle*" (Katzner 2001). As a result, Japan rapidly recovered from its crushing defeat in World War II and by 1970 had become the world's third largest economy. This unprecedented period ended in 1973 with the oil crisis, which caused a sharp rise in oil prices worldwide and a decline in US-Japan cooperation. Real GNP growth thus declined to a more economically sustainable average of 3% per year until the 1980s (Beckley et al. 2018).

After a period of stabilization, the Japanese economy entered a phase known as the bubble economy in the mid-1980s (Noguchi 1994), characterized by a surge in real estate and stock prices supported by strong growth in consumption, investment, and GDP (Amano 2022). The cause of the bubble is still debated, and there are several theories about what the main cause was. For example, the consensus is that an important factor was the Bank of Japan's lowering of interest rates in response to pressure from abroad, which increased access to money and encouraged investment in Japan (Ito and Hoshi 2020). However, Tiberghien (2005) argues that a key factor in the uprising was the deregulation of Japan's financial system, which had been heavily regulated by the state. Deregulation began in the 1970s and intensified in the 1980s as capital markets became more accessible and developed. As a result, large corporations gained easier access to cheaper financing outside the banking sector, while at the same time beginning to participate in stock market investments. Meanwhile, losing their best customers, banks began lending to riskier sectors, especially real estate and small and medium-sized enterprises, and investing in speculative activities in the stock markets. At the same time, the deregulation of interest rates and the liberalization of financial markets increased competition, leading to a decline in bank profitability and a greater reliance on hidden reserves in the form of capital gains (Tiberghien 2005).

The deregulation of international trade also had an impact on the bubble, as tariffs were lowered and foreign direct investment was opened, which led to an immediate economic boom in Japan. This policy change allowed foreign investors to enter the Japanese market and encouraged both foreign direct investment and investment by Japanese residents. This led to a sharp rise in stock and real estate prices in the period that followed, which became the subject of speculation fueled by low interest rates. Banks invested huge amounts of money in real estate and encouraged speculative activity by issuing bank loans secured by the purchase of real estate. Stock prices on the Japanese stock market tripled between 1985 and 1989, and real estate

prices in Japan's six largest cities even quadrupled between 1985 and 1990 (Tomfort 2017; Aliber et al. 2023). From an economic point of view, this was a unsustainable and destabilizing increase that was not justified by the real value of these assets, so the Bank of Japan decided to limit speculation in the real estate and stock markets to prevent the bubble from inflating further. Accordingly, it raised interest rates to restrict access to money. However, this move caused the stock market to crash and the bubble to burst. There was a sharp decline in prices, and many borrowers were unable to repay their debts, which were backed by speculative assets. This eventually led to a banking crisis, followed by a prolonged slowdown in economic growth and deflation, which became Japan's main economic problem in the following decades (Gupta 2023).

Japan is a country with a declining population, and about one in seven homes is vacant. Today's mortgages are too large to fill these empty homes, but too small for households to participate in financialization. Finally, consumer credit and other debt have declined rapidly in Japan, largely because Japanese households have not engaged in financialization (Hattori 2020).

Although deflation is a common phenomenon during economic crises (as demand for goods falls, firms must lower prices to sell their products), economies typically recover within a few years and inflation returns, driven by renewed growth in demand and prices in the economy. However, after the bursting of the Internet bubble, Japan entered a period referred to as the "lost decade" or "lost two decades" (Glawe et al. 2021), with the period from 1992 to 2012 characterized by persistently low economic growth and persistent deflation. The average real growth rate of the Japanese economy during this period was only 0.8%. Deflation also proved particularly problematic, and despite great efforts, neither the Bank of Japan nor the Japanese government was able to reverse it in the long term and bring the economy to a more stable situation (Ito and Hoshi 2020).

Japan's economic stagnation, which began with the bursting of the bubble, has become the subject of much economic research. Poor monetary and fiscal policy and structural problems, along with an aging population and the appreciation of the yen since the mid-1990s, are seen as the main causes. However, there are other views. For example, Yoshikawa (2007) argues that although uncertainty was not the main cause of the economic stagnation caused by the bubble economy, uncertainty played a significant negative role in subsequent efforts to revive the economy, especially after the 1997–1998 financial crisis. Instability in the financial system was the main source of this uncertainty, which undermined the effectiveness of fiscal and monetary policy and prevented the Japanese economy from recovering. Akram (2019) also mentions Japan's very low wage growth and low labor productivity, which contributed to low inflation and deflationary trends.

The increase in price rigidity and the anchoring of inflation expectations at 0% due to the prolonged period of zero inflation has become a major problem for the Japanese economy. Over time, the public has come to perceive price instability as a norm (Watanabe and Watanabe 2018). This is particularly problematic when the public loses confidence in the central bank's ability to achieve its inflation targets. This reduces the effectiveness of monetary policy and, in some cases, makes it impossible to achieve the intended results. Japan faced just such a problem because of prolonged

deflation. Despite the central bank's attempts to achieve stable inflation of around 2%, the public remained skeptical that prices would rise, making it impossible to achieve this goal. Each successive failure of the central bank only reinforced this lack of confidence in achieving the inflation target (Nishizaki et al. 2014).

Despite these challenges, the Bank of Japan, under the leadership of Governor Haruhiko Kuroda, decided in 2013 to launch a bold program of quantitative and qualitative monetary easing aimed at reviving inflation and ending a prolonged period of deflation (Hattori 2024). Kuroda set a clear goal of achieving 2% inflation within two years. This unprecedented program included massive purchases of government bonds, interest rate cuts to negative levels, and intensive communication with the public about the need to overcome deflation. Although some of these measures led to some improvement in the economic environment, the changes were only temporary and inflation soon returned to 0% (Watanabe & Watanabe 2018; Hattori 2024).

After nearly 30 years of teetering on the brink of deflation, inflation in Japan finally reached and even exceeded the 2% target in the second half of 2022. The rise in prices was largely due to the sharp depreciation of the Japanese yen, which led to higher import prices and a consequent rise in consumer prices. The weak yen made imported goods and raw materials much more expensive, which translated into higher costs throughout the production chain (Bank of Japan 2023). Although inflation has finally surpassed the long-established target, questions remain as to whether price increases will be sustainable in the absence of external pressures such as exchange rate fluctuations or global energy price increases. Japanese economists and policymakers are now focusing on whether this trend will lead to more stable economic growth, or whether further structural reforms are needed to strengthen domestic demand and long-term price stability.

2.2 The phenomenon of hidden inflation: definition, differences and impact on economies

In an environment of persistently low inflation, where consumers are accustomed to stable prices and firms struggle to remain competitive, it is difficult to pass on rising costs through prices (Imai and Watanabe 2014). In a market economy, price changes usually reflect the balance between supply and demand, but inflation does not always manifest itself only as an increase in the price level. It can be divided into three basic types. Open inflation, common in market economies, consists of direct price increases caused by excess demand or supply constraints. Suppressed inflation, typical of centrally controlled economies, occurs when prices are artificially maintained by government regulation, leading to shortages of goods, forced saving, or redistribution through government mechanisms such as queues or waiting lists. Hidden inflation can occur in both market and centrally controlled economies and manifests itself as a reduction in the quantity or quality of products while maintaining a nominal price, making them more expensive. These forms of inflation affect economic agents differently, and repressed and hidden inflation can have a significant impact on the availability and quality of goods and thus on overall economic stability (Drábek et al. 1994).

The term hidden inflation is now often confused with the term shrinkflation. The term was first used in 2009 by Brian Domitrovic to describe a situation in which there is a decline in economic activity combined with high inflation. However, the term shrinkflation as we know it today did not gain wider popularity until later (Zimmer et al. 2022; Bialek et al., 2024). The first use in today's sense is attributed to economist Pippa Malmgren. The word shrinkflation is a neologism made up of two words: shrink and inflation. "Shrink" refers to reducing the size of a product, while 'inflation' refers to inflation (Lewis and Malmgren 2018; Zimmer et al. 2022).

Because it is a relatively new term that is not yet well established in the economic literature, its definition varies slightly from article to article. For example, Janssen and Kassinger (2025) characterize shrinkflation as: "*the phenomenon in which the size of products shrinks while their prices remain the same or rise slightly*". On the other hand, Milan and Singh (2024) characterize shrinkflation as: "*a method of subtly reducing the size or quantity of a package while maintaining the price*". This raises the question of whether a situation in which there is a reduction in the size of a product accompanied by an increase in price should be referred to as shrinkflation, or whether some other term should be used. Moreover, neither of these descriptions mentions a change in the composition or quality of goods, which is usually considered to be a common manifestation of disguised inflation.

Based on the scientific literature, it seems that the term shrinkflation is primarily associated with a reduction in the size of products while maintaining or slightly increasing their prices. In cases where there is a reduction in the quality of products without a change in price, a new term—skimpflation—began to be used in the literature in 2024. Evangelidis (2024a) defines it as: "*a reduction in the quality of a product without a change in its price*".

Due to the lack of established definitions of these terms in the economic literature, it was decided, for the purposes of this study, to distinguish the terminology in the following way. The concept of hidden inflation, which is well-established in economic literature and encompasses both quantitative and qualitative changes, has been adopted as the overarching term that includes both shrinkflation and skimpflation.

The term "product downsizing" is another term found in the scientific literature in the context of situations where there is a reduction in the size or quantity of products (Lee 2024; Melmiès, 2024). Although often considered synonymous with shrinkflation, "product downsizing" encompasses any reduction in products, regardless of changes in price. The term can therefore refer to situations in which manufacturers not only reduce the size of products, but at the same time reduce their price, which by the definition of shrinkflating would not qualify as the same phenomenon. Since "product downsizing" does not necessarily involve keeping the same price or increasing it, it should be distinguished from shrinkflation and not treated as its equivalent (Imai and Watanabe 2014).

Although shrinkflation is a relatively new term, this does not mean that the phenomenon of product shrinkage has not occurred before. As early as the early 1990s, the issue was addressed by Adams and co-authors (1991), whose work evaluated shrinkflation positively. They considered it an effective strategy that allows firms to increase profits without directly raising product prices.

However, this approach contrasts with later perceptions of shrinkflation, when consumers began to view it as a negative phenomenon that diminished their shopping experience. From an ethical perspective, the practice has been criticized by Gupta (2007), who suggests in his research that shrinkflation takes advantage of the consumer's unconscious, which de facto leads to an increase in the effective price of the product without transparently informing the customer and thus constitutes an unethical act (Kumar and Kataria 2023).

Table 1 summarizes the main concepts related to hidden inflation used in this study. It clarifies the terminology and emphasizes the key differences.

3 Causes of shrinkflake in Japan

3.1 Price sensitivity of Japanese consumers

In Japan, shrinkflation is most evident in fast-moving consumer goods such as food, beverages, and daily necessities (Huizen 2024; Kim 2024). A typical example is Milky chocolate by the Japanese manufacturer Fujiya, which has undergone a four-time reduction in weight since 2001, while its price has remained at 200 yen. A similar trend can be observed with Kappa ebisen rice crackers from Calbee or the chocolate treats Kinoko no yama by Meiji. This trend extends across many products, illustrating the broader use of shrinkflation as a business strategy. The evolution of prices and weights for the above products since the early twenty-first century is presented in Table 2.

In the case of all three products, manufacturers' efforts to maintain the same nominal price—even if it meant reducing the weight of the product—were evident from the early 2000s. This strategy was especially prevalent during Japan's prolonged period of low inflation and deflation, when consumers were highly sensitive to nominal price increases. Under such economic conditions, even minimal price increases were

Table 1 Key terms related to hidden inflation and their definitions

Term	Definition	Source(s)
Hidden inflation	General concept describing a decline in product size or quality while the nominal price remains unchanged; includes both shrinkflation and skimpflation	Drábek et al. (1994); Imai & Watanabe (2014)
Shrinkflation	Reduction in the size/quantity of a product while maintaining the same (or slightly higher) price	Janssen & Kasinger (2025); Milan & Singh (2024)
Skimpflation	Reduction in the quality of a product (e.g., ingredients, service) without a change in price	Evan-gelidis (2024a)
Product downsizing	Any reduction in product size/quantity, regardless of price changes (can involve both lower and higher nominal prices)	Lee (2024); Melmiès (2024)

Table 2 Price and weight evolution of milky, Kappa Ebisen and Kinoko no Jama since the beginning of the twenty-first century

Product	Year	Weight	Price (¥)
Milky	2001	138 g	200 ¥
	2008	120 g	200 ¥
	2022	108 g	200 ¥
	2024	100 g	200 ¥
Kappa Ebisen	2000	100 g	130 ¥
	2008	90 g	130 ¥
	2019	85 g	130 ¥
	2022	77 g	150 ¥
	2023	77 g	160 ¥
	2024	77 g	170 ¥
Kinoko no Yama	2000	89 g	200 ¥
	2008	82 g	200 ¥
	2015	74 g	200 ¥
	2023	74 g	215 ¥
	2024	74 g	230 ¥

viewed unfavorably, prompting manufacturers to employ so-called “shrinkflation” tactics—reducing quantities while keeping prices unchanged. However, this approach began to change in 2022 and 2023, as products such as Kappa Ebisen and Kinoko no Yama responded to rising input costs by raising prices directly. This change in pricing behavior coincided with Japan reaching a 2% inflation rate for the first time in nearly three decades. With consumers now increasingly aware of general price increases, manufacturers found greater leeway to adjust nominal prices, as broader acceptance of inflation softened resistance to visible price increases.

A recent and widely discussed example of this dynamic can be seen in the case of Nestlé Japan’s KitKat. In 2020, Nestlé reduced the size of its standard “KitKat Mini” from 11.6 to 9.9 g about a 15% reduction—while maintaining the same package price. According to the company, this adjustment was driven by consumer concerns about calorie and sugar intake, leading to a reformulation that replaced some of the sugar with soy milk okara (lees) powder and repositioned the product as more “bite-sized”. However, public discourse on social media platforms, including a notable thread by Twitter user @narumikeiya (<https://www.twitter.com/narumikeiya>), revealed that many consumers perceived the change not as a health-oriented improvement, but rather as a indicator of Japan’s broader economic challenges, including stagnant wages, rising inequality, and declining purchasing power.

This confirms that the long period of price stability has had a significant impact on Japanese consumers, particularly in terms of their sensitivity to price changes (Humpe and Macmillan 2009). This phenomenon can be explained by the economic concept of price elasticity of demand, which refers to how strongly demand for products responds to price changes (Tellis 1988; Lippert et al. 2021). If the price elasticity is high, even a small price increase can lead to a significant drop in demand, while a low-price elasticity indicates that demand remains stable even when prices increase (Weber and Wasner 2023). In the case of Japan, the price elasticity of demand has been consistently high since the early twenty-first century, meaning that Japanese consumers have been particularly sensitive to price changes (Lee and Olasehinde-Williams 2021; Fukunaga et al. 2024).

This high sensitivity to price changes is likely the result of decades of zero inflation and price stability during which the Japanese became accustomed to fixed prices. In such a stable price environment, any price increase is easily felt and often results in a negative reaction that can cause an immediate drop in demand for a particular product. For example, the *Nikkei Keizai Shinbun* describes a case in which fresh vegetables became more expensive in the winter of 2018, causing consumers to stop buying these products (Nikkei Keizai Shinbun 2018).

The high price sensitivity of Japanese consumers is confirmed by research conducted by the Government of Japan, which found that the price elasticity of demand in Japan is generally higher than in Germany or the United Kingdom, reflecting the long-term impact of price stability on consumer behavior (Fukunaga et al. 2024). In an environment with high price elasticity, producers cannot afford to raise prices, as even a small increase can lead to a drop in demand and loss of customers. As a result, many Japanese firms have long practiced price rigidity-avoiding frequent price adjustments and instead resorting to alternative strategies such as shrinkflation (D’Orazio and Popoyan 2022).

The study by Abe et al. (2008) confirms this by showing that over 90% of Japanese firms surveyed exhibit price rigidity, i.e. they do not respond immediately to changes in demand or costs by raising prices. The main reasons for this behavior are the need to react to competitors’ pricing strategies and various types of information costs. On the other hand, the physical costs associated with price changes, such as updating price lists, were considered insignificant by these companies. Other findings from the study show that more than one-third of the companies surveyed had not changed their prices in the past decade, confirming that price rigidity is significantly higher in Japan than in other developed economies.

The sensitivity to price fluctuations in Japan is evident in the emergence of specialized domestic platforms that systematically monitor and analyze changes in prices and product weights to identify patterns related to shrinkflation and price increases. One example of such a platform is the website www.neage.jp, which documents price and volume changes for thousands of products and services. The categories monitored include groceries, everyday items, franchise restaurant menus, and other services. For example, in the case of food, the site provides detailed information on composition, price trends, and weight changes since the product was introduced, the date of the change, and whether the change was publicly announced. The site also includes a detailed product history, including comparisons to previous formulations where applicable, as well as other relevant information. This platform serves as a comprehensive monitoring tool for products and services.

Similar consumer-driven platforms exist in other countries. For example, the U.S.-based blog www.mouseprint.org regularly highlights instances of shrinkflation—particularly in consumer goods—by providing photographic evidence and product comparisons. The Reddit community [r/shrinkflation](https://www.reddit.com/r/shrinkflation) (www.reddit.com/r/shrinkflation) provides a global, crowdsourced forum where users document and discuss product shrinkage in real time. In the United Kingdom, the Office for National Statistics (ONS) has conducted detailed analyses of the impact of shrinkflation on consumer price inflation (Payne 2019; Budiarto 2024). In their 2019 report, “The Impact of Shrinkflation on CPIH, UK: January 2012 to June 2017,” the ONS examined how

Table 3 Examples of downsized products (Białek et al. 2024)

Company	Product	Date of size reduction	Size reduction	Size reduction [%]
Nestlé	After eight	2010	From 200 to 170 g	15
Burton's biscuit	Cadbury fingers	2015	From 125 to 111 g	11.2
Milka	Milka nuts & raisins	2017	From 300 to 270 g	10
Unilever	Ben & Jerry's ice cream	2020	From 500 to 465 ml	7
General mills	Boxes of cereal	2021	From 19.3 oz to 18.1 oz	6.2
Procter & gamble	Roll of toilet paper	2022	From 264 to 244 sheets	7.6
Mars, incorporated	Whiskas cat food	2023	From 100 to 85 g	15

reductions in product size—without a corresponding reduction in price—affect the consumer price index, including owner-occupier housing costs (CPIH). They found that shrinkflation was particularly prevalent in the food and drink sector during this period.

These initiatives illustrate the growing public interest in tracking subtle pricing strategies and underscore the potential of crowd-driven platforms to capture consumption trends across different markets. Based on these observations, the creation of an international shrinkflation index or monitoring tool that allows for systematic cross-country comparisons could be of significant academic and practical value, particularly in the areas of consumer behavior, marketing strategy, and inflation analysis.

The phenomenon of shrinkflation has led Japanese manufacturers to adopt strategies such as reducing the volume or weight of products to avoid direct price increases that might deter consumers. However, with the onset of inflation in 2022, there has been a shift in firms' responses: some firms have begun to pass on rising costs directly to consumers through price increases rather than resorting to shrinkflation. This shift suggests that shrinkflation is an adaptive strategy—rather than a default business tactic—whose application depends on specific economic conditions.

3.2 The impact of Shrinkflation on inflation measurement

A change in the size of a product without a corresponding change in price may be difficult for consumers to perceive, and they may not even realize that it is in fact a negative change. This raises important questions about the prevalence of shrinkflation and its impact on inflation measurement. For example, in 2019, the United Kingdom's ONS identified 206 products that had shrunk in size and 79 that had increased in size between September 2015 and June 2017. The majority of these products were food. Between 1 and 2.1% of the food products in their sample shrank in size in 2016, while between 0.3 and 0.7% increased in size (Białek et al. 2024). Examples of downsized products from well-known brands are shown in Table 3.

These reductions highlight the global nature of shrinkflation and its impact on consumer products. The strategic use of shrinkflation continues to shape how companies respond to rising costs while maintaining consumer loyalty.

3.3 Shrinkflation strategy as a tool to maximize profits and respond to rising costs

In addition to the desire to maintain price stability, which is particularly important given the high price elasticity of demand in Japan, it is worth considering whether shrinkflation also serves as a tool for profit maximization. Firms can use shrinkflation not only to subtly pass on increased costs to consumers, but also to optimize profit margins without risking the reduction in demand associated with direct price increases.

Watanabe (2022) examines the emergence of so-called next-generation products—new versions that replace earlier ones while retaining the same name, thus acting as successors to the original offerings (Ofek and Sarvary 2003; Watanabe 2022). When these next-generation products are reduced in mass or size, they meet the criteria for shrinkflation. This analytical framework allows for the identification and quantification of cases of shrinkflation in a given year.

A significant increase in shrinkflation occurred in 2008 during the global financial crisis. At that time, energy prices and the cost of key commodities—such as grains and other imported materials—rose sharply. This put significant pressure on producers, particularly in the food sector, which is heavily dependent on imports. Given the high price elasticity of demand, producers were reluctant to raise prices directly, as this could lead to a significant decline in sales. Shrinkflation therefore emerged as a practical strategy to offset higher input costs without compromising market competitiveness.

Another notable increase in shrinkflation followed the implementation of Abenomics in 2013, when the Bank of Japan adopted an aggressive monetary easing policy that led to a significant depreciation of the Japanese yen (Wakatabe 2015). The weakening of the yen further increased the cost of imported raw materials, which in turn led producers to reduce the size of their products rather than raise prices (Hausman and Wieland 2014; Młodawska-Bronowska 2019).

These developments suggest that shrinkflation in Japan is primarily driven by the need to respond to rising production costs rather than by the pursuit of profit maximization. If profit maximization were the dominant factor, we would expect shrinkflation to occur even in periods of stable or declining input costs. Thus, while the goal of increasing profits cannot be completely ruled out, it appears to be secondary to cost-driven motivations. Shrinkflation in the Japanese context is best understood as a market-stabilizing response aimed at maintaining consumer demand in the face of economic pressures, rather than as a deliberate strategy to increase profits.

3.4 Discount culture and “100-Yen” stores

The popularity of discount culture and “100-yen stores” strongly influences Japan’s retail landscape. A survey by Asmarq found that 90% of households regularly pur-

chase discounted food items, prioritizing savings and impulse buys (Rahman 2019, 2022). Similarly, Fujita (2023) found that approximately 80% of working-age consumers (ages 20–40) shop during sales, planning purchases to maximize savings. This price-sensitive environment discourages overt price hikes, prompting producers to adopt shrinkflation, or reducing product sizes to maintain nominal prices.

Shrinkflation is not unique to Japan. In Poland, Bialek et al. (2024) documented size reductions in yogurt (9.3%) and soap (8.8%), among other goods. The UK's Office for National Statistics (ONS) reported that more than 2,500 items were downsized from 2015 to 2017, particularly in food categories. Similar trends have been noted in the U.S., particularly during inflationary periods. These trends reflect a global strategy to address cost pressures without alienating price-conscious consumers.

One major contributor to this shift is the success of 100-yen stores, such as Daiso, Seria, and Can Do, which offer a wide range of low-cost goods. Some of these goods are now priced at 200–500 yen (Rahman 2019, 2022). These chains use highly optimized supply chains to keep prices low despite economic volatility. Their growth has pressured other retailers to adopt similar cost-saving measures, including shrinkflation.

Japan's long period of low inflation has conditioned consumers to resist price increases, making shrinkflation a safer alternative for manufacturers. The normalization of thrift-oriented behavior, reinforced by the popularity of 100-yen stores, has made affordability a key market expectation. Consequently, shrinkflation has spread beyond budget stores, becoming a widespread strategy across the Japanese retail sector.

3.5 Japanese consumers' perception of Shrinkflation

With the widespread adoption of shrinkflation as a common commercial practice in Japan, an increasing number of consumers are noticing and respond to this strategy (Dekimpe and Heerde 2023). Shrinkflation is attracting attention from both the media and ordinary consumers, raising concerns regarding the transparency and perceived value of products (Bhat et al. 2024).

According to a survey conducted by the Consumer Protection Agency in July 2018, 82.2% of respondents felt that shrinkflation occurred more frequently than three years ago. In addition, 24.8% of respondents said that they changed their shopping habits or stopped buying certain products altogether as a result of shrinkflation. Similar results were found in a survey conducted by Pricing Studio in 2022, where approximately 69% of respondents answered "yes" or "somewhat yes" to the question "Do you feel that shrinkflation is increasing?". These results suggest that a significant portion of consumers are aware of shrinkflation and that its presence affects their purchasing behavior (Consumer Affairs Agency 2018; Pricing Studio 2024).

The awareness of shrinkflation is undoubtedly also supported by social media platforms such as X (formerly Twitter), where the hashtag #kuimon minna chisaku natte masenka Nihon has become particularly popular. Under this hashtag, users share their experiences with shrinkflation and discuss specific cases. In this way, shrinkflation becomes more visible to a wider audience, and discussions on the topic are stimulated.

Japanese consumers' opinions on shrinkflation were also examined in the aforementioned 2018 survey conducted by the Consumer Protection Agency. Of the 1,889 respondents, 24.2% thought shrinkflation was unfair, while 21.7% thought it was an inevitable consequence of rising prices. Respondents were given several statements to choose from and could select all that applied to them. The study shows that attitudes toward shrinkflation in 2018 were more neutral, with the majority of respondents having no definitive opinion on the matter.

The results obtained by Pricing Studio in its 2024 online survey differ significantly from those of the 2018 study conducted by the Consumer Protection Agency. In the Pricing Studio survey, 505 respondents were asked whether shrinkflation was an acceptable or unacceptable business strategy. More than 72% of respondents considered shrinkflation unacceptable (Shin 2024). In this study, respondents were given a choice between two options, forcing all participants to choose a definitive answer. Even those who did not have a clear opinion on the matter were forced to choose one of the options, which can lead to significantly different results than the type of survey conducted by the Consumer Protection Agency (Shin 2024). For this reason, it is difficult to compare the results of these two studies, and it cannot be definitively concluded whether consumers' opinions on shrinkflation have changed or whether the difference is merely due to the different survey formats. There is currently a lack of further research on this topic that could help clarify this issue.

According to this study, 20.5% of respondents said they would prefer to keep the product size the same with a transparent price increase. This group expresses a clear preference for transparent price increases. Another 27.9% of respondents chose the option "I prefer a transparent price increase with no change in size". Nearly half of the respondents preferred nominal price increases to shrinkflation. On the other hand, 19.9% of respondents said they would prefer shrinkflation and 5.3% said they would even prefer it. The survey shows that Japanese consumers are divided on this issue, with a larger proportion preferring transparent price increases, but a significant portion of the population still preferring shrinkflation.

Respondents who preferred nominal price increases to shrinkflation gave several reasons for their decision. According to them, a direct price increase is easier to understand and more transparent than price increases through shrinkflation. Some stated that they did not like it when the actual price increase occurred without prior announcement, as they perceived it as unfair. Another reason was that shrinkflation sometimes requires consumers to buy more products, which ultimately leads to higher spending.

On the other hand, respondents who preferred shrinkflation mentioned that a small decrease in the volume or size of products may go unnoticed, thus reducing the "shock" associated with a price increase. Some consumers also indicated that higher prices discouraged them from purchasing the product. In addition, some respondents noted that in the case of food, they view shrinkflation positively because smaller portions can reduce food waste and make it easier to consume (MS&Consulting 2022).

Although some Japanese consumers prefer shrinkflation, data from Nikkei POS Information's analysis suggests that shrinkflation as a strategy is not always effective. Seven out of ten food products in the database that underwent shrinkflation experienced a decline in sales. For example, Megmilk Snow Brand cheese, which

was reduced in weight from 140 to 120 g, experienced a decline in sales of 11–24% compared to the same period the previous year (Nikkei 2018). These data suggest that while some consumers may accept shrinkflation, many others view it as an unfair price increase, which may lead to a reduced willingness to purchase the product. Divided consumer attitudes thus pose a challenge for manufacturers, who must strike a balance between maintaining competitiveness and maintaining consumer trust.

In contrast to the shrinkflation strategy, examples from Akagi Nyugyo and Yaokin show that transparent and open communication about price changes can positively influence consumers' attitudes and strengthen their relationship with the brand (Kim et al. 2024). In 2016, as part of a price increase for its popular Gari Gari-kun ice cream, Akagi Milk Industry adopted a transparent approach that included a nationwide campaign to promote the change and a public apology from company representatives. A video of Akagi Milk Industry's employees collectively apologizing to consumers received widespread interest and positive feedback not only in Japan but also internationally. The result of this initiative was not only the retention of consumer trust, but also a 10% increase in sales in the month following the announcement of the change.

Similarly, when Yaokin announced a price increase for its popular corn snack Umaibó from 10 to 12 yen after more than 40 years, it was able to maintain consumer trust through transparent communication. The announcement was posted on the X platform, where it received a very positive response. Consumers particularly appreciated the company's long-term efforts to keep prices low without raising them and its openness in communicating with customers.

These examples highlight the importance of transparent communication during inflationary periods (Cooper et al. 2024). The analysis suggests that producers who focus on openly sharing information about price increases and building long-term relationships with customers are likely to achieve long-term success and strengthen consumer loyalty. This approach may prove more effective than the use of shrinkflation, which can provoke negative reactions from certain consumer groups. According to the analysis, by 2024, there was a noticeable trend of manufacturers moving away from the practice of shrinkflation. An increasing number of Japanese companies are opting for direct price increases rather than shrinking product sizes, which may indicate that companies are beginning to consider consumer expectations and adapt their pricing strategies to changing market conditions. This trend indicates a change in the way companies approach their relationships with consumers and a conscious response to their attitudes toward price and product quality.

4 Global context of Shrinkflation: a broader perspective on consumer behavior and pricing strategies

The phenomenon of shrinkflation is not limited to Japan, but is increasingly being observed around the world, particularly in countries experiencing economic stress or inflationary pressures (Budianto 2024; Chalioti and Serfes 2024; Evangelidis 2024b). In the face of rising production costs, shrinking product sizes has become a strategy used by companies around the world to maintain competitive prices without directly

raising prices (Evangelidis 2024b; Janssen and Kasinger 2025). From the United States to European countries, shrinkflation has sparked debates about fairness and consumer transparency, with varying degrees of consumer reaction depending on local economic conditions, cultural expectations and regulatory environments (Wardhaugh 2013; Bhattacharya 2024; Çakır et al. 2025).

In the United States, a 2024 survey revealed that 82% of consumers expressed concern over shrinkflation, with 43% being very concerned and 39% somewhat concerned. This sentiment has led to significant consumer actions; approximately 49% of U.S. shoppers reported switching to different brands, and 48% opted for generic alternatives upon noticing shrinkflation. This trend highlights the significant impact shrinkflation has on consumer behavior and decision-making (The US Sun, 2024; business.yougov.com, 2024; Stantcheva 2024).

Shrinkflation has also raised consumer awareness in the European Union, particularly in Germany and the United Kingdom. A 2022 survey by the European Consumers' Organization (BEUC) found that 62% of German consumers and 59% of British consumers had encountered shrinkflation, particularly in packaged food and household goods (Dekimpe and Heerde 2023). Similar to their Japanese counterparts, European consumers often perceive shrinkflation as a deceptive practice, preferring transparent price increases to reduced product sizes. This preference reflects global concerns about price transparency and the perceived value of products (BEUC 2022).

In contrast, countries with high inflation, such as Argentina, Turkey, and Zimbabwe, present a contrasting picture (Kurasha 2021; Yilmazkuday 2022; Perelman 2024). In these economies, shrinkflation often coexists with rapid price increases and currency depreciation (Algieri et al. 2024; Sánchez 2024). This makes consumers distrustful of firms and policymakers. Unlike in Japan, where shrinkflation emerged as an alternative to visible price hikes during long periods of near-zero inflation, shrinkflation in high-inflation contexts tends to exacerbate consumer frustration because it compounds frequent nominal price increases. Reports from Argentina and Turkey suggest that consumers view shrinkflation as an additional layer of unfairness rather than a strategy to protect purchasing power. This perception stems from the belief that downsizing is more unjust than equivalent price increases, as consumers feel deceived by the hidden nature of the cost adjustment (Evangelidis 2024b). In Zimbabwe, where hyperinflation undermined confidence in prices and packaging standards, shrinkflation contributed to a loss of trust in the market (Chamisa et al. 2018; Miller and Ndhlela 2022). These comparisons show that, while shrinkflation may temporarily protect market share in stable or low-inflation economies, it risks accelerating consumer dissatisfaction and brand erosion in high-inflation settings.

The global nature of shrinkflation highlights its role as an important part of the broader economic landscape, reflecting changing consumer behavior toward price sensitivity and value perception (Yang and Han 2014; Ghali-Zinoubi 2021). Understanding how different regions react to and cope with shrinkflation can provide valuable insights into the socio-economic underpinnings of inflation and consumer confidence, offering a more nuanced view of pricing strategies. Further research in this area is essential to explore how shrinkflation affects consumer loyalty, market dynamics and brand reputation in different cultural contexts, thereby contributing to a global understanding of this economic phenomenon and informing future busi-

ness strategies. These international observations underscore that while shrinkflation may be used by manufacturers to counter rising production costs, it often leads to consumer dissatisfaction. Globally, consumers tend to prefer transparent pricing strategies over perceived reductions in product value, prompting retailers and manufacturers to carefully consider the long-term impact of shrinkflation on brand perception and customer loyalty.

5 Conclusion

The aim of this study was to investigate the phenomenon of shrinkflation within the Japanese context. Shrinkflation in Japan is the result of a combination of several factors, such as long-term price stability, high price sensitivity among consumers, and the influence of the retail environment, particularly the expansion of 100-yen stores and discount culture. These factors create pressure on producers to seek alternatives to direct price increases, which could negatively affect demand. Shrinkflation has become a tool for producers to maintain competitiveness and respond to rising production costs, indicating that it is primarily a response to cost increases rather than a strategy for profit maximization. The predominant sentiment among Japanese consumers is a clear preference for transparent price increases over the phenomenon of shrinkflation, which is often perceived as unjust. However, some respondents see shrinkflation as a less objectionable alternative to direct price increases, especially in the case of food, where reducing product size can lead to less waste. Transparent communication, as demonstrated by Akagi Milk Industry and Yaokin, can enhance consumer trust and loyalty.

The study provides clear answers to the three research questions posed. In the context of Japan, the term “shrinkflation” is employed to denote a phenomenon wherein goods are reduced in size while their prices remain unchanged or are even increased. This concept is often used in conjunction with “hidden inflation” and “product downsizing.” A related concept, “skimpflation,” refers to a scenario in which the quality of a product is diminished without any adjustment in its price. Secondly, Japanese manufacturers primarily implement shrinkflation as a response to prolonged price stability, elevated consumer price sensitivity, and competitive pressures associated with discount culture. This approach is not driven by a desire for pure profit maximization. Thirdly, Japanese consumers exhibit ambivalent perceptions of shrinkflation. While many regard such price increases as unfair and prefer transparent price increases, a minority accept it as a less disruptive alternative, especially when it reduces waste. These findings support the conclusion that shrinkflation in Japan is a context-specific phenomenon, shaped by cultural, economic, and behavioral factors.

Future research should examine the differences in the application of shrinkflation in other countries, considering different cultural and economic conditions. Further studies may also focus on analyzing the presence of shrinkflation in the Japanese CPI or developing communication strategies that minimize the negative effects of price increases. The phenomenon of shrinkflation in Japan reflects the country's specific socio-economic conditions, and its use is closely linked to the high price sensitivity of Japanese consumers. The analysis shows that transparent communication of price

changes is an effective strategy that not only mitigates negative perceptions of price increases but also strengthens brand trust and fosters long-term consumer loyalty. A policy of price transparency appears to be a more sustainable and effective approach than shrinkflation, especially in a social context where consumers place a high value on trust and long-term relationships with brands. This study has two limitations. First, there is a lack of empirical modeling and visual representation of inflation trends in Japan. Future research should address this gap by integrating quantitative data and monetary policy indicators to complement the contextual analysis provided here.

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Declarations

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