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Scientific report

How can firms make healthier decisions?

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HOW CAN FIRMS MAKE HEALTHIER DECISIONS?

A growing body of research by TSE economists seeks to improve ways to measure the impact of Corporate Social Responsibility (CSR) strategies. For a new report focused on the health costs of added sugar, Sophie Moinas and Sébastien Pouget teamed up with Fabien Delaere, Impact Valuation Director for Danone's health strategy. It proposes an integrated valuation tool that allows responsible companies to account for their impacts on society. In a parallel study, Céline Bonnet provides an empirical method to assess the societal impact of manufacturers in the French dessert market once the social cost of sugar is accounted for. Here, TSE researchers discuss their techniques and findings, offering recommendations to guide public policy and inform the ethical strategies of firms, investors, customers and employees.

In search of the Common Good

When more responsible corporate decisions can boost profits with no conflict between the interests of the firm and society, companies are likely to willingly engage in *strategic CSR*. For instance, if customers are prepared to pay more for healthier products, using less sugar may enable a firm to secure its license to operate, differentiate from its competitors, attract higher market shares and make larger profits. Firms may also strategically anticipate future regulations, such as sugar taxes. However, pressures to go beyond strategic CSR now often arise from shareholders, regulators and other stakeholders.

This is because markets are not perfect. In particular, firms can have impacts – known as *externalities* – that are not reflected in prices and profits. Due to lack of information or suboptimal preferences, consumers can also experience *internalities* they do not consider when buying. *Distributional issues* also arise because markets do not account for fairness or inequality. In the presence of such imperfections, profit-maximization will not be sufficient to push firms to work for the Common Good. This leads to the notion of *extended CSR* that goes beyond profit-seeking to incorporate societal impacts into business decisions.

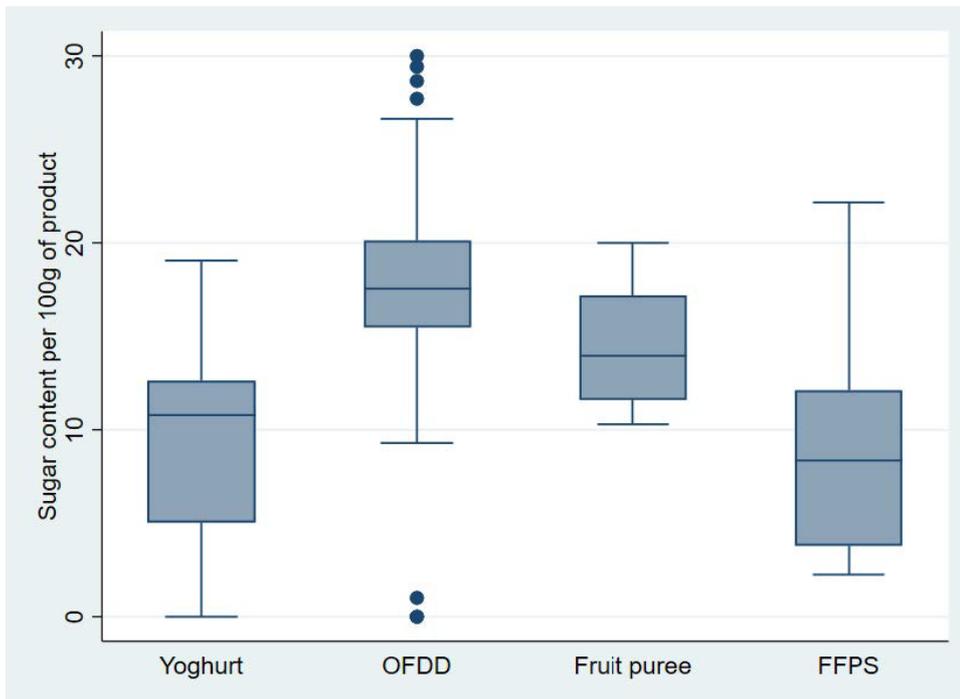
Societal impacts in the food industry

The food sector is in urgent need of impact assessment because of its high social, health and environmental dependencies and impacts. Food production requires the use of natural and human resources, often generating extensive environmental damage such as climate change, pollution, animal welfare concerns, water scarcity, and loss of biodiversity. The food sector also has the opportunity to contribute to public health through the nutritional quality of its products.

68g

American adults consume an average of 17 teaspoons (68g) of added sugar every day, more than 2-3 times the recommended amount for **men (36g) and women (24g)** respectively. (American Heart Association)

Céline Bonnet's study focuses on the French desserts market composed of fruit purees, fresh dairy products and plant-based alternatives.



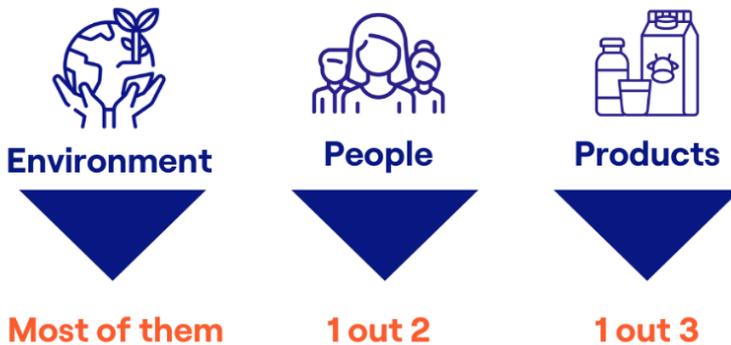
Sugar levels vary widely across Céline's four product categories: yogurt, fruit purees, fromage frais or petits suisses (FFPS), and other fresh dairy desserts (OFDD). OFDD are the most sweetened products with an average sugar content of 17g per 100g of product, followed by fruit puree with 14g.

In the food sector, this segment has a significant impact on the environment and health. Dairy products as a whole are the second largest contributor to climate change after meat and the second largest contributor to sugar intake in France, particularly among children. The causal relationship is well established between added sugar consumption and poor health, including an increased risk of developing obesity, diabetes, and heart disease. An externality materializes when this translates into costs for society, for example via health insurance systems. Sugar consumption also raises an internality issue when people ignore the harm they cause to themselves because of cognitive biases, for example, or imperfect information. Distributional issues arise as poorer people tend to suffer most from excessive sugar consumption.

How can firms account for societal impacts?

The first step to account for corporate societal impacts consists in estimating how large these impacts are, which can then be translated in financial terms based on cost-benefit analysis and associated monetization. Societal impacts can then be included in financial decision-making tools by specifying how much the decision-maker cares about them in addition to profits. The logic is the same as the discounted cash flow logic that is used in practice to assess the financial value of companies and to make investment decisions. By evaluating the monetary value of societal impacts, these values can be integrated into financial models alongside traditional financial variables such as revenues and costs.

56 companies are experimenting with societal impact monetization on



(Serafeim et al., 2021)

CSR). The model can be applied to negative and positive externalities, whether on climate, health, or biodiversity. Firms' decisions can then be guided by considerations of the value of societal impacts and stakeholders' willingness to address these non-financial impacts. They can also account for the probability that regulators will move to regulate or tax businesses that generate high social costs.

To use this integrated framework, firms need to input their expectations of future financial cashflows and their growth rates, along with the expected monetized social footprint and its growth rate. The rate at which future societal impact is discounted can be estimated using methods in corporate finance. The footprint, which measures the corporate emissions or contribution to social damages or benefits (e.g., total amount of added sugar sold by the company), can be forecast based on an analysis of a firm's business and social environment. As a first proof-of-concept for the complex health impacts of food and beverages, the value of societal impact focuses here on the firm's sugar footprint monetized using a social cost of sugar.

\$17 billion

In the US, increasing prices of sugary drinks by **1 cent per ounce** could result in savings of **more than \$17 billion in healthcare costs**.
(Silver et al., 2017)

This approach can also account for avoided sales of detrimental nutrients. This is because it is adapted to counterfactual analysis, just as the purely financial net present value method is. When evaluating a project that can replace existing business and produce less sugar, this approach considers the *avoided sugar* as a positive societal impact.

Focus on the Integrated value formula

Inspired by Fleurbaey and Ponthière (2023) and Schoenmaker and Schramade (2023), Fabien Delaere, Sophie Moinas and Sébastien Pouget have developed an integrated value formula that enables to compute the societal value of a firm by accounting for both its cash-flows and societal impacts. Cash-flows at a given date t , denoted by F_t , may derive either from standard strategies or from the financial materiality of a responsible strategy. Societal impacts, denoted by SM_t , represent the monetized value of the externalities the firm exerts on society, e.g., the social cost of added sugar. Assuming constant rates of growth, g and γ , for the cash-flows and the societal impacts, respectively, the formula for the firm's integrated valuation (IV) reads:

$$IV = \frac{F_1}{k - g} + \alpha \frac{SM_1}{\rho - \gamma}.$$

The parameters k and ρ are the firm's cost of capital and the social discount rate, respectively. The proportion α represents the share of the monetized value of the social impact that decision-makers wish to internalize. These decision-makers may be the executives of a firm dealing with strategic decisions. For a public benefit corporation, α could be chosen by the benefit director or the public mission committee. The choice of α involves an ethical deliberation on how to share the responsibility of the public good or bad created by the firm.

Calculating a social cost of sugar

Both studies conducted for the TSE-Danone partnership build on the pragmatic method of Rischbieth et al. (2020) who monetize the impact of added sugars by measuring the cost of treating the associated diseases. For the US, this amounts to \$34 per kg. This is a useful first step towards measuring firms' societal impact as far as added sugar is concerned.

However, beyond data availability and sensitivity to assumptions, this approach faces a number of limitations. To begin with, a constant social cost of sugar ignores differences – both within and between countries – in consumption habits, risk prevalence and medical costs. For example, US citizens consume far more sugar than Chinese citizens, and the marginal impact of consuming a portion of added sugar on their health is therefore different. Lack of data often impairs accounting for those differences, and also undermines forecasts of the evolution of societal impacts.

It should also be noted that these calculations do not include indirect effects such as patients' loss of income due to disease, human rights abuses, or sugar's potential benefits related to pleasure or mental health. Existing approaches are mostly based on computing the damage costs of added sugar.

Measurement of the firm's sugar impact

The firm's sugar impact generally consists of accounting for the 'direct' impact of the firm's product portfolio that depends on the cost to society of one kilogram of added sugar multiplied by the total amount of sugar that companies put on the market. However, to account

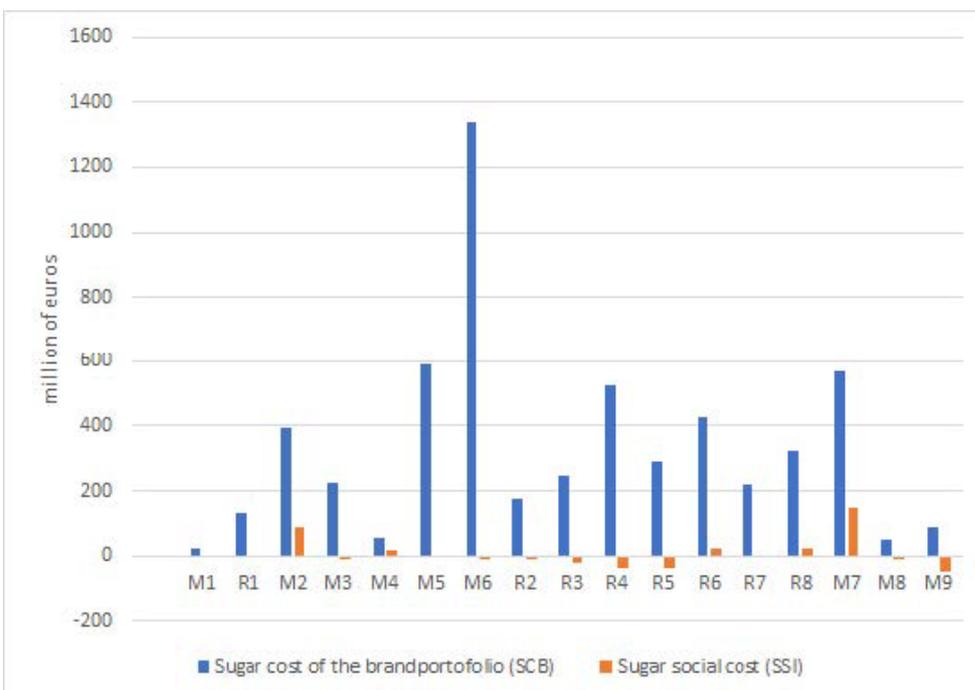
for consumer and market reality, the measurement of the societal impact of a firm should refer to a reference scenario of the market in which the firm operates. For this, Céline’s study uses the set of products available on the market in the absence of the products sold by the firm. She can then compare market equilibria with and without the firm. She focuses on the social costs of sugar induced by the activities of firms, using a dataset that includes more than 1.4 million purchases of dessert products in 2017 from a representative set of 22,140 French households.

Céline also needs to model how consumers and competitors would behave if the firm did not exist. How many consumers would stop consuming desserts? Or switch to other products? The firm’s sugar societal impact within the industry then depends on consumer substitution patterns but also on the sugar levels of its competitors’ products. For instance, if competitors produce desserts with a higher sugar content than the firm, households would consume more sugar in the absence of the firm. The more consumers switch to competing products with high sugar content, the lower the sugar impact of the firm. In Céline’s model, this market is composed of multinational firms with market power. When a firm exits, competitors will react and adjust their pricing strategy, which is accounted for in Céline’s supply model.

She provides an empirical analysis of three welfare components: industry profit, consumer surplus and societal impact of added sugar. A complete analysis of the societal impacts of dessert products is left for future research because it would require additional data. For example, animal welfare and environmental externalities are not included.

Sugar societal impact of dessert companies

Céline finds that the societal impact of sugar can be positive or negative, depending on the firm’s market share, the sugar quality of its products relative to competitors, and consumer substitution patterns. A negative amount means the sugar impact of the whole industry is less damaging than it would be without the firm. A positive amount means the firm exacerbates the industry’s sugar damage impact.



For each firm in her study, Céline Bonnet compares total sugar cost with true social impact. The latter can be positive or negative, depending on the firm’s market share, the sugar content of its products relative to competitors, and consumer substitution. A negative amount means the presence of the firm reduces the industry’s overall sugar impact. A positive amount means the firm exacerbates the industry’s impact. M for manufacturer and R for retailer.

Over the 17 dessert providers, 12 improve the sugar impact of the French dessert market. The magnitude of firms' impact varies greatly: one manufacturer is responsible for a social cost of sugar of €150 million, while another reduces the social cost of the industry by €48 million.

Céline's study finds a huge difference between the firm's sugar societal impact and the direct sugar footprint of its brand portfolio, which depends only on the quantity of products sold and their sugar quality. For example, the manufacturer with the highest direct sugar cost, mainly due to its high market share, ultimately reduces the sugar impact of the industry.

The observed situation is better for consumer welfare than if any firm exited the market. Moreover, only one manufacturer has a positive impact on the industry profit. As the total quantity of products sold on the market varies by less than 1% regardless of which firm exits, the variation in industry profit is mainly explained by the impact of a firm's exit on other products and their margins.

Céline's results challenge the argument that selling highly sweetened products is good for firms' profitability. Her research finds no correlation between a firm's impact on industry profit and its sugar impact. This means that a firm could increase profits in this market without increasing the societal impact related to sugar.

FURTHER READING

- Publications by Fabien Delaere, Sophie Moinas and Sébastien Pouget, '[Integrating health impacts in corporate decision-making tools](#)' and '[The effects of taxation on the individual consumption of sugar-sweetened beverages](#)' by Céline Bonnet.
- For more information on the cost of sugar used by Rischbieth et al., see "[Accounting for Product Impact in the Consumer-Packaged Foods Industry](#)" (HBS, 2021).
- For a general conceptual framework on corporate societal impacts, see Magill, Quinzii, and Rochet, '[A Theory of the Stakeholder Corporation](#)' (*Econometrica*, 2015), and Fleurbaey and Ponthiere, '[The Stakeholder Corporation and Social Welfare](#)' (*Journal of Political Economy*, 2023). For a more applied framework, see Schoenmaker and Schramade, '[Corporate Finance for Long-Term Value](#)' (Springer, 2023).

KEY RECOMMENDATIONS

For effective metrics

- The social cost and benefits of nutrients should be computed **per country**, based on **individual characteristics** including age, gender, occupation, and income.
- Reliable societal impact metrics should consider consumer **substitution patterns**, as well as competitors' quality of products and pricing strategies.

For regulators

- Regulators must improve **access to data** – at the country level, and possibly by social group – on consumption habits, disease prevalence, risk association, and healthcare costs.
- Regulators will need to **monitor** the independent private institutions engaged in the audit and certification of firms' CSR reports. Regulatory oversight can also normalize the social costs of the various corporate impacts.
- Regulators should use transparent methods to adjust **taxes** to match the social cost of externalities. Together with clear **reporting standards**, this will help firms to assess their impact or the probability of future taxes.

For firms and investors

- The **disclosure of data** on sales of nutrients – per country/region (and possibly by group of customers) – will improve the assessment of a firm's societal impact.
- When assessing their impact, in the absence of data on consumption patterns, firms may be able to apply different **social costs of sugar by category** of products (e.g., targeted to children vs adults).
- For their stakeholders to assess firms' societal impact, firms must precisely communicate their CSR strategy's **expected impact on the growth** of sales.
- When using integrated valuation tools, the parameter for the firm's **willingness to internalize** its impact should be fixed by the firm's governing bodies (e.g., shareholders, corporate directors, CSR committee).
- Sharing **good practices** on accounting for societal impacts can trigger a dynamic shift and allow firms to benefit from each other's experience.
- Integrated valuation offers asset managers a reliable alternative to existing **best-in-class strategies** based on ESG ratings.

Just for desserts – Lessons from the French market

- The presence of some dessert manufacturers improves consumers' sugar intake from this sector.
- Dessert makers can improve industry profits without additional sugar social costs.
- Economic arguments for adding large amounts of sugar do not stack up.

ABOUT THE PARTNERSHIP

This scientific report is a product of the TSE-Danone research partnership. Danone Research has been a partner of TSE's Sustainable Finance Center and Health Center since 2021. The TSE teams are grateful for Danone Research's support.

- **Céline Bonnet** is Director of Research at INRAE and a researcher at TSE. She specializes in industrial organization and consumer behavior in agri-food chains. Her recent research addresses the assessment of food policies for better health and sustainable consumption.
- **Fabien Delaere** is Impact Valuation Director in the Health Strategy & Partnerships department at Danone Research. He focuses on developing and applying approaches to assess food impacts on diets and health, from the understanding of current dietary habits to fostering strategies to increase Danone's positive contribution.
- **Sophie Moinas** is a professor of finance and TSE researcher, as well as Director of TSE Sustainable Finance Center. Her work focuses on market microstructure (fragmentation, high frequency trading, green assets), asset pricing and experimental finance.
- **Sébastien Pouget** is a professor of finance, TSE researcher and Program Director of the partnership. He studies financial markets with a multidisciplinary approach combining insights from economics, psychology and history and with a particular focus on responsible investing.

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