

Inderst, Roman; Thomas, Stefan

Working Paper

Prospective welfare analysis: Extending willingness-to-pay assessment to embrace sustainability

LawFin Working Paper, No. 29

Provided in Cooperation with:

Center for Advanced Studies on the Foundations of Law and Finance (LawFin), Goethe University

Suggested Citation: Inderst, Roman; Thomas, Stefan (2022) : Prospective welfare analysis: Extending willingness-to-pay assessment to embrace sustainability, LawFin Working Paper, No. 29, Goethe University, Center for Advanced Studies on the Foundations of Law and Finance (LawFin), Frankfurt a. M.,
<https://doi.org/10.2139/ssrn.3699693>

This Version is available at:

<https://hdl.handle.net/10419/249310>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.



LawFin Working Paper No. 29

Prospective Welfare Analysis

Extending Willingness-to-Pay Assessment to Embrace Sustainability

Roman Inderst | Stefan Thomas

First Version: 25/09/2020

This Version: 09/02/2021 – 1

Prospective Welfare Analysis

Extending Willingness-to-Pay Assessment to Embrace Sustainability

Roman Inderst & Stefan Thomas¹

running title: Prospective Welfare Analysis

ABSTRACT

In this paper we outline how a future change in consumers' willingness-to-pay can be accounted for in a consumer welfare effects analysis in antitrust. Key to our solution is the prediction of preferences of new consumers and changing preferences of existing consumers in the future. The dimension of time is inextricably linked with that of sustainability. Taking into account the welfare of future cohorts of consumers, concerns for sustainability can therefore be integrated into the consumer welfare paradigm to a greater extent. As we argue in this paper, it is expedient to consider changes in consumers' willingness-to-pay, in particular if society undergoes profound changes in such preferences, e.g., caused by an increase in generally available information on environmental effects of consumption, and a rising societal awareness about how consumption can have irreversible impacts on the environment. We offer suggestions on how to conceptualize and operationalize the projection of such consumers' changing preferences in a "prospective welfare analysis". This increases the scope of the consumer welfare paradigm and can help to solve conceptual issues regarding the integration of sustainability into antitrust enforcement while keeping consumer surplus as a quantitative gauge.

Keywords: Antitrust, Consumer Welfare, Sustainability

JEL: A13; K21; K32

¹ Professor Dr. Roman Inderst, Chair in Finance and Economics, Goethe-University, Frankfurt a.M. Email: Inderst@finance.uni-frankfurt.de; Professor Dr. Stefan Thomas, Chair in Private Law, Commercial Law, Competition Law and Insurance Law, Director of the Tübingen Research Institute on the Determinants of Economic Activity (TRIDEA) Faculty of Law of the Eberhard Karls University, Tübingen. Email: thomas@jura.uni-tuebingen.de. The authors thank the Center for Advanced Studies on the Foundations of Law and Finance for support (DFG project FOR 2774).

I. INTRODUCTION.....	3
II. Defining the Object of Our Analysis.....	3
A. On the notion of sustainability.....	4
B. Exemplification	5
III. ON THE INTEGRATION OF FUTURE CONSUMERS IN AN EFFECTS ANALYSIS	9
A. The conceptual challenge	9
B. Our contribution in light of suggestions made in literature and practice.....	13
C. The legal posit of integrating future WTP into the analysis	16
IV. THE INTEGRATION OF CHANGE IN WTP INTO EFFECTS ANALYSIS.....	19
A. Organization	19
B. Eliciting and measuring preferences of current consumers	19
a) Data on the individual (choice) level	20
b) Extracting WTP and relating it to other observables	21
C. Forecasting	23
a) Forecasting from extracted WTP	23
b) Forecasting using modified choice contexts	24
c) Harnessing additional data and information on the overall population	25
D. Weighing, aggregating and balancing WTP over time	26
V. CONCLUSION AND OUTLOOK	27

I. INTRODUCTION

Imagine that a competitive restraint resulting from a cooperation between firms helps to produce goods that preserve resources or protect biodiversity in the long run, albeit inflicting higher prices upon consumers immediately. While current consumers might value the contribution of these products to sustainability to some degree, the price increase might still exceed this amount, so that consumer surplus of this first cohort would decrease. If future consumers supposedly have the same preferences, this would not change this conclusion.² Imagine now, however, that the valuation of these product characteristics by future consumers might be significantly higher, mirroring, e.g., an increased scarcity of resources, a further decline in biodiversity, or wider access to information about the environmental impact of specific goods or their production process. In fact, the willingness-to-pay (hereinafter WTP) found in such later consumers (including former consumers that have changed their WTP) might have risen so much that the price increase is now fully offset by the benefits of the cooperation. To block the competitive constraint for now and to reassess this decision in the future may, however, not be an option. For one, it may be unlikely that the particular case arises again and the willingness among firms to agree on sustainability measures might have vanished. Furthermore, current production and consumption may lead to irreversible processes, such as a loss in biodiversity, which may even deprive future consumers of the particular choice option so that the goal pursued by the sustainability agreement cannot be reached anymore.

Such possible repercussions are not addressed in the current practice of consumer welfare assessment. In this article, we argue that competitive assessment must open up towards the effects on surplus of future consumers and must thereby account for the possibility that these may have different preferences. Thereby, increasing concerns for sustainability can be reflected, without there being a full integration of externalities, including on those persons who are not even likely consumers of the considered products. We outline quantitative methods that can be applied to render this approach operable.

We will proceed in our analysis as follows: We first define the object of our analysis (II). We then argue when it is that the consumer welfare approach cannot confine itself to the recognition of the surplus of current consumers (III.). Subsequently, we establish that an effects assessment can account for changes in future consumers' WTP (IV.). There, we propose the use of various economic techniques to extract and extrapolate consumer preferences and their (future) distribution. We exemplify our approach and explain how it can be used to integrate sustainability into quantitative analysis. We close with a summary and outlook (V.).

II. Defining the Object of Our Analysis

In this first section, we start by honing the notion of “sustainability” as used in the antitrust debate (at II.A.). Subsequently, we home in on the persons and interests involved when considering sustainability issues in antitrust, both in scope and in the dimension of time (II.B.). Finally, we develop an example that will constitute the background for our further deliberations (II.C.).

² Of course, current production and consumption may have a direct externality on future consumers, just as on other individuals. We argue below why our approach does not take these externalities into account.

A. On the notion of sustainability

The notion of sustainability does not yet have a generally recognized definition within the antitrust debate. We consider it expedient to outline its possible dimensions. The term is able to capture a range of societal goals including, but not limited to, such related to the ecology of our planet. The draft paper of the Dutch competition and markets agency *Autoriteit Consumer & Markt* (ACM) on sustainability agreements highlights this.³ While it focuses on „climate change and sustainability“⁴, it also addresses examples of agreements on „animal-friendly products“⁵, or such „guaranteeing a fair income“.⁶ In what follows, we do not take a stance on whether a narrow or wider concept of sustainability is warranted. But we will be clear on how the respective benefits should be calculated and taken into account in a consumer welfare analysis. That said, however, as we focus on consumer welfare we acknowledge that we take an anthropocentric approach, so that benefits from increased sustainability are defined through the respective (use or non-use) values for individuals.⁷

Taking into account the width of the notion of sustainability, it is possible to identify several dimensions of benefit that can become relevant for antitrust balancing. The most direct effect relates to immediate consumers who bear the cost, yet also might derive some rent increase from the restrictive measure, e.g. a sustainability agreement.⁸ This allows to rely on the consumer welfare standard without more. Concomitantly, sustainability agreements might benefit non-consumers (including those that are not even potential or future customers) by reducing negative externalities that would otherwise harm them, such as climate change.⁹ As a matter of categorization, one could further differentiate between citizens of the respective jurisdiction in which the antitrust assessment takes place, and the rest of the world population that derives benefit from the measure. This might also include small producers in developing countries within the scope of a fair-trade agreement if the latter is conceived of as a matter of sustainability.

This scope of affected persons and interests can be extended into the dimension of time. Future consumers, or non-consumers, can be affected by the benefits of a sustainability measure. As to the dimension of

³ ACM Draft Guidelines: Sustainability agreements – Opportunities within competition law. Available at: <https://www.acm.nl/sites/default/files/documents/2020-07/sustainability-agreements%5B1%5D.pdf> (last accessed 05 October 2020).

⁴ ACM Draft Guidelines: Sustainability agreements, *supra* note 3 ¶ 6.

⁵ ACM Draft Guidelines: Sustainability agreements, *supra* note 3 ¶ 30.

⁶ ACM Draft Guidelines: Sustainability agreements, *supra* note 3 ¶ 30. Also the Staff Discussion Paper of the Hellenic Competition Authority (HCC 2020) refers to the United Nations' broader development targets of economic, financial, institutional, social, and environmental sustainability (para. 3), as well as to the broader sustainable development objectives enshrined in the EU Treaties (para. 9). Still, much of the subsequent discussion focuses on ecological sustainability, as expressed, for instance, in the objective formulated in para. 18 (Integrating environmental concerns as broader externalities to be taken into account in competition law enforcement).

⁷ A less anthropocentric approach is instead used, for instance, in ecological economics, *see* MICHAEL COMMON & SIGRID STAGL, *ECOLOGICAL ECONOMICS: AN INTRODUCTION* (Cambridge University Press 2005), where such preferences are just one element of various normative criteria to be considered.

⁸ Such immediate and direct consumers might have an increased WTP for the products offered within the scope of the sustainability agreement.

⁹ If a direct consumer, who is affected by a price increase as a result of a sustainability agreement, has no increased WTP for the sustainability feature of the product, this direct consumer would, technically, also fall into this category, since his or her harm in consumer rent through the price increase would not be offset by an increase in WTP, so that the only net benefit accruing to this person would be the mitigation of the negative externality.

time, future consumers might display an increased WTP for product features that result from the sustainability contribution of the agreement. Also, future consumers and non-consumers might benefit from the mitigation of negative externalities which is achieved by the sustainability agreement. By definition, future consumers consist of both, those consumers who are still in the market, and of new consumers, that have not existed before.

We dedicate our paper to the dimension of time within the consumer welfare paradigm. This calls for the integration of the welfare of future consumers, as it is affected by a restriction of competition that already starts now. Thereby, benefits obtained from increased sustainability are traded off with a respective loss, e.g., through an increase in prices, at different points in time. What is novel in our approach is that we ask for possible changes in the preferences of future consumers as compared to those of existing consumers to be taken into account. As we lay out in detail below, such a difference may arise from greater overall awareness and information that future consumers may have on the effects of consumption on the environment. But differences in preferences may also derive from a persisting negative externality caused by present production and consumption, as this may affect the WTP of future consumer generations in relation to sustainability measures. We will discuss appropriate methods to forecast such changes in preferences across consumers. In our approach we relate to situations in which such a change in future generations' WTP about sustainability features would be unable to yield any effects if accounted for only in the future since the past consumption of previous generations will have had irreversible effects on the environment. The only way, in those instances, to account for future generations' increased WTP for sustainability will therefore be to integrate it into a consumer welfare analysis from an *ex ante* perspective, i.e. before such increased WTP would emerge in real purchasing decisions.

From a legal perspective, we will argue that such intertemporal balancing is possible and required under a consumer welfare standard, as is the consideration of a change in preferences, to the extent that this can be substantiated sufficiently. Moreover, we will explain, in the following, why we think this approach is expedient despite the other suggestions that have already been made on integrating sustainability into antitrust. It must be stressed at the outset that our proposal is not supposed as a substitute for the discussed alternative approaches, as their scope and legal implications are, arguably, very different.

B. Exemplification

For our further analysis, we will refer to the leading example in the following. We will discuss below, which of its features are relevant for our approach so that the respective arguments can be transferred to other cases with similar characteristics. Suppose fishing companies enter into an agreement on fishing standards to preserve biodiversity in the sea by protecting endangered species from being caught. This agreement will increase the cost and price of fish products. Assume, now, that customers, at the time when the measure is launched, display an insufficient WTP for sustainability as a product feature to offset the effects which the price increase has on their surplus. In a counterfactual absent the agreement, therefore, such a standard could not be introduced at that point in time if checked against the consumer welfare gauge.¹⁰

¹⁰This accounts for the fact that, for any antitrust defence to become relevant, it must be established that the restriction of competition is necessary in order to obtain the benefit. As outlined in the *ex-post* analysis by the

What makes it necessary, now, to consider later generations of consumers is that, in our example, the agreement or its absence will have long-lasting, potentially irreversible consequences. In particular, we suppose that, at a later point in time, it will be too late for a sustainability measure to fully restore the impact that unrestricted fishing will have had until then, because endangered species will have been extinct.¹¹ As we already noted, in this article we confine ourselves to exploring the possibility of including concerns for sustainability within the consumer welfare paradigm. This means, in particular, that we do not concern ourselves with the *direct* implications that production and consumption at a given point in time and the resulting loss of diversity has on the welfare or wellbeing of other individuals, including future generations. Still, within the concept of consumer welfare, we argue it to be necessary to take into account the preferences of future consumers, as the agreement or the absence of it will affect their choices. Now, if their preferences did not deviate from those of existing consumers, this typically should not alter the assessment of the considered agreement. There are, however, various

ACM of the “chicken of tomorrow” case, this calls for a case by case assessment. The mere fact that an agreement is intended to benefit the environment does not carry in itself evidence of its necessity. *See* ACM, *Welfare of today's chicken and that of the 'Chicken of Tomorrow*, 13 August 2020, available at: <https://www.acm.nl/sites/default/files/documents/2020-08/welfare-of-todays-chicken-and-that-of-the-chicken-of-tomorrow.pdf> (last accessed 05 October 2020).

¹¹The fishing industry has produced some case law on attempts of private market organizations, both in the US and in Europe. According to Article 40 of Regulation 1379/2013 on the common organisation of the markets in fishery and aquaculture products, OJ 2013 L 354/1, the competition rules apply in the fishing sector, with a limited scope for a special exception according to its Article 41. The exception under Article 41, however, relates to the attainment of the objectives of Article 39 TFEU, not to the pursuit of sustainability as an end in itself. While the Commission makes mention of sustainability as an effect of a measure under Article 41, this statement is made in the context of the availability of food supplies. Yet the protection of the environment is not mentioned as a standalone goal that could legitimize a restriction of competition, *see* Commission, Guidance document on the implementation of Chapter II “Professional Organisations” of Regulation (EU) No 1379/2013 establishing a common organisation of the markets in fishery and aquaculture products, p. 10, available at: https://ec.europa.eu/fisheries/sites/fisheries/files/docs/body/guidance-document-on-implementation-of-professional-organisations_en.pdf. 36 pp (last accessed 5 October 2020). Against this backdrop, the Dutch competition authority in 2003 imposed fines on four Dutch fishermen’s cooperatives and a Dutch wholesalers’ organization for anticompetitive collusion (quotas and price fixing) regarding the production of brown shrimp (for a case report *see* <https://www.acm.nl/nl/publicaties/publicatie/5133/NMa-bevestigt-verbod-kartelafspraken-garnalenvisserij> (last accessed 5 October 2020)). Irrespective of whether that would have been dispositive to the outcome of the overall assessment, the agency did not find any sustainability benefit in those measures, *see* NMa press release of 22 March 2011, Highest Dutch court in antitrust cases upholds fines on shrimp cartel, available at: <https://www.acm.nl/en/publications/publication/6534/Highest-Dutch-court-in-antitrust-cases-upholds-fines-on-shrimp-cartel> (last accessed 5 October 2020), Josien Steenbergen, Brita K. Trapman, Nathalie A. Steins & Jan Jaap Poos, *The Commons Tragedy in the North Sea Brown Shrimp Fishery: How Horizontal Institutional Interactions Inhibit a Self-Governance Structure*, 74 ICES JOURNAL OF MARINE SCIENCE 2004–06 (2017). In 2014, the EU Commission sanctioned four shrimp traders (Case COMP/39633) for colluding on quotas and prices, allocating markets, and exchange of information. In the Commission’s view, this case was aimed at inflating prices at a downstream level. The Commission did not even mention any sustainability benefits. Also in the US, several agreements in the fishing industry have received antitrust scrutiny in as early as the 1930s. In 1934 the Fishermen’s Collective Marketing Act (FCMA) eventually provided partial exemptions for fishermen from the Sherman Act (on the FCMA *see* M. R. Garstang, *Antitrust Exemptions – Fisheries*, 1967 Antitrust Law J., 14-19; for details on the US cases and on a 2009 amendment of the FCMA *see* Cento Veljanovski, *Collusion as Environmental Protection - An economic assessment*, 15 September 2020, p. 18, available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3693381, last accessed 5 October 2020). We do not intend to analyze these cases and legislative frameworks. Rather, we use the fishing industry as an example to illustrate how market outcomes can precipitate irreversible effects on common goods, e.g. by a loss in biodiversity, so that the time at which a sustainability measure is enacted becomes pivotal for its success.

reasons for why the preferences of future consumers may differ. We now provide several such reasons, which is, however, not a comprehensive list.

Future preferences are shaped by newly obtainable information and the attention that is given to it by the media. In our case, greater awareness about the consequences of fishing methods for biodiversity and, likewise, about the importance of biodiversity for the functioning of the entire ecosystem should profoundly affect individual preferences. Future consumers would, upon the assumption of more information and respective media attention, be willing to pay a higher price for the goal of preserving biodiversity through their individual purchasing decisions. As we assume in our example, this requires, however, to consider such change in WTP already now, since ignorance about such future changes would mean the agreement would have to be blocked now, which would, based on the premises of our example, lead to an irreversible decline in biodiversity that could not be restored by the purchasing awareness of future generations.

It should be noted that in this case, future consumers might still ascribe the same importance to biodiversity as previous generations have done. But the former might simply have better information on the *effects* of negative externalities on the environment than the latter had, more specifically related to the respective products. This constitutes a channel through which an increase in information might alter their WTP.¹² Importantly, such a shift may relate both to entirely new consumers of the products in the future, such as newly grown-ups purchasing the item for the first time in their life, as well as “old” consumers that have changed their WTP over time. When we speak of a new “cohort” or “generation” of consumers, we relate to both.

One may also witness societal trends that shift preferences, which can possibly be forecast. Taking responsibility for the environment may be seen as a moral obligation by a growing fraction of society, which can, again, be triggered by media attention. The change in attitude and behaviour of a large part of society may, then, redefine social norms with respective repercussions on individual preferences. Without taking into account such a shift in social norms, preferences of future consumers are incorrectly perceived.

More specifically, future generations of consumers may ascribe to biodiversity and thus to the respective features of a product a greater weight in their decision than previous generations did. Another reason for such a shift can be that demographics may shift the average weight that consumers in a given cohort ascribe to sustainability features. Older consumers are gradually substituted for by younger generations that have developed different preferences. These changes can, thus, involve even new customers that have not yet been relevant consumers when the initial cooperation was made, as opposed to the then existing group of consumers. Yet even an existing consumer may substantially change his or her WTP due to a reassessment of preferences based on better information and a personal re-evaluation of social norms.

It goes without saying that both an increase in information and a shift in the weight attributed to certain product features in the decision process can coincide. We argue that such a change in WTP in the future can become particularly relevant in the context of sustainability, since the effects of negative externalities on the lives of consumers become more tangible at an increasing speed. At the same time, the information available on

¹² More technically speaking, in this case consumers’ preferences over an underlying bundle of “commodities”, of which preserved biodiversity is only one, would remain constant, but with new information a given product would be perceived differently, contributing more or less to the preservation of biodiversity.

environmental effects is growing, and the public discourse is, most likely, shaped by matters of sustainability to an increasing extent, which can bear on consumers' preferences.¹³

To summarize, the first key feature of the considered possible cases is, thus, that the agreement is intended to counter effects on persons that are not identical, in a physical or temporal dimension, with the present consumers. As we outline below, even the "same" person at two different points in time will not be the same entity in conceptual terms since he or she may alter his or her WTP over time, which must be accounted for in our approach.¹⁴ Also, we assume in our example that there is some irreversibility inherent in the matter at hand, such that in that the absence of the agreement is assumed to have far-reaching implications on sustainability, which cannot be restored by a change in purchasing behaviour later in time. Take the case of a reduction in biodiversity, where the negative effect on biodiversity resulting from a deferred launch of the said fishing standard could not be fully made up for later.

Another feature, which is of key relevance for the idea advanced in this article, is that future consumers, again including the future representation of the current consumers with changed preferences, might have a greater WTP for the sustainability feature than the first generation has had. If the second generation's WTP were to be taken into consideration, the harm inflicted on it and on previous generations through the price increase might, therefore, be offset once the WTP of all relevant generations¹⁵ is aggregated.

¹³ The rapid growth in organic products in Europe, albeit fuelled by various forces, incl. health consciousness, bears witness to such a change. For instance, over five years, from 2014 to 2018, retail sales in the EU have increased by over 10 billion Euros, which is almost half the level of sales in 2014 (Helga Willer, Bernhard Schlatter, Jan Trávníček, Laura Kemper & Julia Lernou (eds.), *The World of Organic Agriculture – Statistics and Emerging Trends 2020*, Research Institute of Organic Agriculture (FiBL), Frick, and IFOAM – Organics International, Bonn (2020)). Though this has arguably also other reasons, such as growing subsidies, which are however also an expression of societal preferences, market penetration of electric cars provides another example. In the EU-27, Iceland, Norway and the United Kingdom's yearly registrations of electric cars increased from under 200,000 in 2016 to over 500,000 thousand in 2019 (European Energy Agency, *New Registrations of Electric Vehicles in Europe, Monitoring of CO2 emissions from passenger cars – Regulation (EU) 2019/631*, available at: <https://www.eea.europa.eu/data-and-maps/indicators/proportion-of-vehicle-fleet-meeting-5/assessment> (last accessed 01 February 2021)).

¹⁴ See *infra* III.C.

¹⁵ For a discussion of the scope of this aggregation see *infra* IV.D.

III. ON THE INTEGRATION OF FUTURE CONSUMERS IN AN EFFECTS ANALYSIS

A. The conceptual challenge

As has already become clear, we base our thesis on the consumer welfare approach, which is deeply rooted in modern effects analysis.¹⁶ Since the notion of consumer welfare as an antitrust gauge is not precisely defined in the law, we will briefly outline its determinants as underlying this article.¹⁷

The consumer welfare standard in antitrust means that a measure is checked for its propensity to increase or decrease consumer surplus. Consumer surplus is the delta between the price of a product and the consumer's WTP for this item. A lower price for the same product, therefore, increases consumer surplus inasmuch as better quality for the same price does to the extent that the consumer has a greater WTP for improved quality. Also, consumers may appreciate product features outside the use-value of the goods, such as sustainable production methods.

Competition will usually increase consumer surplus, yet there are situations in which restrictions of competition can increase consumer surplus even more, such as the creation of efficiencies that lower prices or improve quality, or agreements that enhance sustainable production methods. The essential feature of the consumer welfare paradigm, therefore, is that the consumer constitutes the sole and ultimate arbiter on whether a restrictive measure (a horizontal agreement or a merger for example) should be tolerated or not. If consumption precipitates negative effects (externalities) on society or on the environment, this will not be accounted for, unless the consumer has a WTP for product features that contribute to the avoidance of those externalities. This is a crucial point for the proposal made in this article, to which we will return in a moment.

¹⁶Neelie Kroes, speech *European Competition Policy – Delivering Better Markets and Better Choices*, European Consumer and Competition Day, London, 15 September 2005: “Consumer welfare is now well established as the standard the Commission applies when assessing mergers”, available at: https://ec.europa.eu/commission/presscorner/detail/en/SPEECH_05_512 (last accessed 05 October 2020); Joaquín Almunia, *Competition and consumers: the future of EU competition policy*, European Competition Day, Madrid, 12 May 2010: “All of us here today know very well what our ultimate objective is: Competition policy is a tool at the service of consumers. Consumer welfare is at the heart of our policy and its achievement drives our priorities and guides our decisions.”, available at: https://ec.europa.eu/commission/presscorner/detail/en/SPEECH_10_233 (last accessed 05 October 2020); Sir Phillip Lowe, speech *Consumer Welfare and Efficiency – New Guiding Principles of Competition Policy?*, available at: https://ec.europa.eu/competition/speeches/text/sp2007_02_en.pdf (last accessed 05 October 2020): “Ladies and Gentlemen, my overall message is short and simple. Yes, consumer welfare and efficiency are the new guiding principles of EU competition policy. Whilst the competitive process is important as an instrument, and whilst in many instances the distortion of this process leads to consumer harm, its protection is not an aim in itself. The ultimate aim is the protection of consumer welfare, as an outcome of the competitive process.” See also Svend Albæk, *Consumer Welfare in EU Competition Policy*, in AIMS AND VALUES IN COMPETITION LAW (Caroline Heide-Jorgensen, Christian Bergqvist, Ulla Neergaard & Sune Troels Poulsen (eds.), DJØF Publishing Copenhagen 2013), 67. For the US see HERBERT HOVENKAMP, *THE ANTITRUST ENTERPRISE: PRINCIPLE AND EXECUTION* (2005) 2: “The only articulated goal of the antitrust laws is to benefit consumers...”

¹⁷ For a comprehensive overview on all the issues see also Svend Albæk, *supra* note 16.

Also, the consumer welfare approach is usually understood as to imply that harm and benefit of a measure will be balanced in relation to the same group of consumers, i.e. in relation to the same relevant market.¹⁸ Accordingly, a reduction in consumer surplus in one market could not be offset by benefits accruing to consumers in another market or even non-consumers. It should be noted, however, that this “identity-requirement” is not a conceptual pillar that would follow from the consumer welfare paradigm as a matter of logic. It would be possible, without more, to allow for a balancing between different groups of consumers on different markets. That this idea is not openly espoused in practice, most likely, has two reasons: it would increase complexity, and it could provoke societal skepticism about the antitrust regime if certain consumer groups suffered a decline in surplus without receiving compensation (even though another group derived benefits which, in total magnitude, would exceed the harm of the former group). Yet even the “identity-requirement”, as enshrined in the established view, does entail an element of redistribution within a consumer group, which has to do with the dimension of time. Any measure on a market will create effects that relate to the future so that any antitrust assessment must account for the welfare of a certain consumer group in the future. However, persons¹⁹ die and procreate. Also, people can become first-time consumers of a good, or end being consumers of a good. When the consumer welfare paradigm in antitrust relates to “the same” group of consumers, it will, therefore, in most cases not be a group of people with the same identity that is affected but rather an abstractly defined sum of persons, the exact identity of whom are unknown at the time when the measure is assessed for its propensity to create a consumer harm. Since the effects on “the same group” of consumers can change over time, the effect on this group of consumers is an aggregation of the effects on this group during a certain period of time, so that some individuals might derive greater benefits than others.²⁰ This is another crucial aspect of the consumer welfare paradigm to which we will return later.

A few further comments are warranted on the role of the consumer welfare paradigm for the application of the antitrust laws. Strong arguments can be made in favour of a total welfare approach instead of consumer

18 Commission, Guidelines on the application of Article 81(3) of the Treaty, OJ 2004 C 101/97 ¶ 43: “Negative effects on consumers in one geographic market or product market cannot normally be balanced against and compensated by positive effects for consumers in another unrelated geographic market or product market. However, where two markets are related, efficiencies achieved on separate markets can be taken into account provided that the group of consumers affected by the restriction and benefiting from the efficiency gains are substantially the same”, on that *see* Svend Albæk, *supra* note 16, 79.

¹⁹ The consumer welfare paradigm, as used in EU-law, does not define consumer as the end-consumer. Rather, even commercial customers can be end consumers. Therefore, legal persons, especially corporations, and other legal entities can be consumers. Yet their surplus will, ultimately, also be determined by the people involved as shareholders, employees, managers and others. We do not immerse ourselves further in the debate on how to define the consumer, since it is of no avail for our proposal.

²⁰ Assume an agreement on research and development that will have some dampening effect on price competition so that consumers will pay more for a good even though the benefits of enhanced research and development will take some years to materialize. In this case, the negative effect on price might occur in a more timely fashion than the improvement in quality. Customers who purchase directly after the beginning of the research and development agreement might, therefore, suffer from increased prices without being compensated by better quality at the time when they make their purchase. For a later consumer generation, this will change since these consumers get better quality thanks to the success of the cooperation. Even though harm and benefit do not emerge contemporaneously and thereby affect persons within the “consumer group” unevenly, the cooperation is exempt from the cartel prohibition on grounds of Article 101(3) TFEU due to its overall-benefit which it will yield during the entire relevant time period.

welfare, but total welfare has not gained much recognition in antitrust enforcement.²¹ The reason, most likely, is that a total welfare approach is more difficult to handle than a consumer welfare design. We accept that as a given.

Also, we do not delve into the debate on whether “competition as an institution” or the “freedom to compete” are goals besides, or even superior to, consumer welfare.²² There are arguments for both views. We find that this debate is of no avail for the matter at hand. The reason for our indifference to the “competition-as-an-institution-paradigm” is the far reaching consensus in antitrust practice that efficiencies and the resulting beneficial effects on consumer surplus are recognized as one, albeit possibly not the single, relevant factor in competition analysis.²³ We recognize that Article 101(3) TFEU, for example, requires a pass through of benefits to consumers, and that much of the Commission’s guidelines with respect to matters of efficiency is guided by the consumer welfare standard.²⁴

In EU-antitrust practice, consumer welfare is, therefore, a recognized standard for theories of harm and efficiency arguments. Effects on consumer surplus are estimated and forecast by way of counterfactual analysis, which is an approach recognized by the courts.²⁵ The required proof for consumer welfare based arguments before

²¹ There is an ongoing scholarly debate on whether total welfare or consumer welfare is the appropriate standard for antitrust enforcement, see Louis Kaplow, *On the Choice of Welfare Standards in Competition Law*, in THE GOALS OF COMPETITION LAW (Daniel Zimmer (ed.), Edward Elgar 2012) 3-26; Damien J Neven & Lars-Hendrik Röller, *Consumer surplus vs. welfare standard in a political economy model of merger control*, 23 INT. J. IND. ORGAN. 829-848 (2005); Barak Y Orbach, *The Antitrust Consumer Welfare Paradox*, 7 J. COMP. L. & ECON. 133-164 (2010); An Renckens, *Welfare Standards, Substantive Tests, and Efficiency Considerations in Merger Policy: Defining the Efficiency Defense*, 3 J. COMP. L. & ECON. 149-179 (2007).

²² The view that competition as a process is an end in itself was and is prominently advanced by the ordo-liberal school of thought, which, until today, is espoused largely in Germany. See Wernhard Möschel, *The Goals of Antitrust Revisited*, 147 Journal of Institutional and Theoretical Economics 7, 9 (1991): “The purpose of the GWB is to protect the free process of competition.”; Wernhard Möschel, *Competition Policy from an Ordo Point of View*, in German Neo-Liberals and the Social Market Economy (Alan Peacock & Hans Willgerodt (eds.), Palgrave Macmillan 1989) 142, 146: “The actual goal of the competition policy of Ordo-liberalism lies in the protection of individual economic freedom of action as a value in itself, or vice versa, in the restraint of undue economic power.”; Lawrence A. Sullivan & Wolfgang Fikentscher, *On the Growth of the Antitrust Idea*, 16 Berkeley Journal of International Law 197, 222 (1998): “They pleaded for a concept of competition that was process-oriented, dynamic, and aimed at political and economic liberty.”; Heike Schweitzer, *The role of consumer welfare in EU competition law*, in Festschrift für Hanns Ullrich (Josef Drexl, Reto M. Hilty, Laurence Boy, Christine Godt & Bernard Remiche (eds.), Larcier 2009) 511-539.

²³ See also GC 7 June 2006, Joined Cases T-213/01 and T-214/01, *Österreichische Postsparkasse*, ECLI:EU:T:2006:151, ¶ 115: “[T]he ultimate purpose of the rules that seek to ensure that competition is not distorted in the internal market is to increase the well-being of consumers.”

²⁴ In the same vein, a merger cannot be prohibited if the consumer harm is fully offset by merger-specific efficiencies, see EU Horizontal Merger Guidelines, OJ 2004 C 31/5 ¶ 77; IOANNIS KOKKORIS & HOWARD A. SHELANSKI, *EU MERGER CONTROL*, ¶ 12.01 (Oxford University Press 2014); MICHAEL ROSENTHAL & STEFAN THOMAS, *EUROPEAN MERGER CONTROL*, Chapter C ¶¶ 496 (C.H. Beck/Hart 2010).

²⁵ The courts have acknowledged that the EU antitrust order is accommodating of econometric models to gauge the effects within the scope of a counterfactual analysis, see, e.g., Court of 16 January 2019, Case C-265/17 P [Comm’ v United Parcel Service] ECLI:EU:C:2019:23, ¶ 33: “To that end, the use of econometric models allows better understanding of the planned operation by identifying and, where relevant, quantifying some of its effects, and thus contributes to the quality of the Commission’s decisions. It is therefore necessary that, where the Commission intends to base its decision on such models, the notifying parties are able to submit their observations in that regard. To that end, the use of econometric models allows better understanding of the planned operation by identifying and, where relevant, quantifying some of its effects, and thus contributes to the quality of the Commission’s decisions. It is therefore necessary that, where the Commission intends to base its decision on such models, the notifying parties are able to submit their observations in that regard.”

the Commission and the courts depends on the facts of the case.²⁶ The Commission and the courts, therefore, are open to considering consumer welfare in the application of the antitrust laws, while the standard of proof is context-dependent, and the decisional practice regarding the latter constantly evolving.

Any dealings with consumer welfare imply assumptions on the delta between consumers' WTP and the actual price. Where direct impacts on prices are at issue²⁷, an assessment of the WTP can be eschewed since the delta between WTP and actual price will be affected by the estimated change in price alone. This does not mean, however, that the consumer welfare approach is confined to price effects, as sometimes insinuated.²⁸ Rather, consumer surplus can increase if product features are enhanced and if consumers display a greater WTP for the improvement. In those instances, it becomes necessary to enter into an assessment of consumer appreciation of certain product features, such as sustainability, in order to directly measure WTP. Albeit adding complexity to consumer welfare analysis, agencies are not hostile to such measurement of consumers' WTP in actual antitrust cases, if this is necessary to investigate into the effects of a measure, namely sustainability agreements.²⁹

It is from here that we start with our proposal. We do not harbour the intention to challenge these established principles of consumer welfare analysis, although we recognize that the extension of welfare beyond that of the actual consumer is at the core of the debate on climate change and sustainability. Still, our extension of the concept of consumer welfare, stressing the respective dynamics, provides one step towards recognizing and integrating such effects on the environment. We will also, however, point out the difficulties and limitations of our approach. The current conceptual challenge with respect to sustainability is rooted in the fact that antitrust law is designed to protect competition and thereby cater to consumer welfare while lacking a proper tool for balancing welfare against negative externalities, or, to be more precise, to balance a decrease in consumer welfare against a mitigation of externalities. At the same time, the consumer welfare paradigm is traditionally focused on existing generations of consumers when considering WTP. While competition economics has gained great sophistication in weighing and balancing effects on the rents of existing consumers³⁰, it is, arguably, less vocal about the

²⁶ The Commission, for example, in merger cases relies on the assessment of upward pricing pressure (UPP) as a gauge for forecasting a potential decline in consumer surplus. The General Court has recently honed the evidentiary standards with respect to such UPP analysis in that it requires some analysis on whether efficiencies might offset incentives for a unilateral price increase. General Court of May 28, 2020, Case T-399/16 [CK Telecoms UK Investments Ltd v. Commission ("CK Telecoms")] EU:T:2020:217; on that see Tilman Kuhn & Stefan Thomas, *The More Economic Judicature: How the General Court has Recalibrated the Merger Gauge*, Competition Policy International, June 7, 2020, available at: <https://www.competitionpolicyinternational.com/the-more-economic-judicature-how-the-general-court-has-recalibrated-the-merger-gauge/> and at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3638075 (last accessed 01 February 2021).

²⁷ This includes upward pricing pressure due to a restriction in competition as well as potential downward pricing pressures due to efficiencies.

²⁸ Rightly objecting allegations that consumer welfare is only about price effects, Herbert Hovenkamp, *Is Antitrust's Consumer Welfare Principle Imperiled?*, 45 Journal of Corporation Law 101 (2019); A. Douglas Melamed & Nicolas Petit, *The Misguided Assault on the Consumer Welfare Standard in the Age of Platform Markets*, 54 Rev. Ind. Organ. 741 (2019).

²⁹ See the Dutch competition authority in "chicken for tomorrow", supra note 10.

³⁰ See, for example, the analysis of an upward pricing pressure in mergers, on that Joseph Farrell & Carl Shapiro, *Antitrust Evaluation of Horizontal Mergers: An Economic Alternative to Market Definition*, 10 B.E.J. Theoretical Econ. 1, 22 n.46 (2010); GC 28 May 2020, Case T-399/16 [CK Telecoms UK Investments Ltd v. Commission ("CK Telecoms")] ECLI:EU:T:2020:217. Or take efficiency considerations in cartel cases under Article 101(3) TFEU.

integration of market effects on the rents of future generations of consumers within the assessment of their future WTP.³¹ While there is no lack of statements – even by the Commission³² – that future generations must be of concern for antitrust³³, there is less clear a picture on how to deal with posteriority if it involves change. To proceed, we briefly discuss various suggestions made in the literature on sustainability that attempt to solve the predicament of current consumers impacting on future generations. This will also allow to better place our contribution and to see its limitations.

B. Our contribution in light of suggestions made in literature and practice

Several suggestions have been made as to how sustainability can be considered when enforcing the competition laws.³⁴ These can be divided, roughly, into two categories. Some want to award to the agencies and

³¹ There is a significant debate on how to measure the appropriate amount of government spending on the pursuit of societal goals, including sustainability measures. Yet these approaches conceive of the investment into the future as a matter of intergenerational fairness to be based on a central decision taken by a state or government, see, e.g., Arden Rowell & Cass R. Sunstein, *On Discounting Regulatory Benefits: Risk, Money, and Intergenerational Equity*, 74 U. CHI. L. REV. 171-208 (2007). We instead argue here that the value of sustainability in the future can be measured by integrating the (appropriately estimated or forecasted) WTP of future generations, which implies a different viewpoint than that of the aforementioned literature.

³² Commission, Guidelines on the application of Article 81(3) of the Treaty, *supra* note 18 ¶ 87 and 88.

³³ See, e.g., Maurits Dolmans, *Sustainable Competition Policy*, 6 Competition Law & Policy Debate 4 (2020), available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3608023 (last accessed 05 October 2020), p. 13 arguing that the agency could, as a matter of last resort if taxation fails to remedy the issue, clear a merger that will inflict monopoly prices on consumers if the product harms the environment so that the decrease in output precipitated by the price increase will contribute to sustainability. See also Simon Holmes, *Climate change, sustainability, and competition law*, 8 J. ANTITRUST ENFORCEMENT 354, 377 (2020).

³⁴ See, out of the vast amount of literature, inter alia, Sarah Beeston, *Competition Law and Sustainability Initiatives*, in FESTSCHRIFT FÜR DIRK SCHROEDER 111 (Juliane Kokott, Petra Pohlmann & Romina Polley (eds.), Otto Schmidt 2018); Claassen Rutger & Gerbrandy Anna, *Rethinking European Competition Law: From a Consumer Welfare to a Capability Approach*, 12 UTRECHT L.REV. 1 (2016); Kevin Coates & Dirk Middelschulte, *Getting Consumer Welfare Right: the competition law implications of market-driven sustainability initiatives*, 15 EUR. COMP. J. 318 (2019); Anna Gerbrandy, *Solving a Sustainability-Deficit in European Competition Law*, 40 WORLD COMPETITION 539 (2017); Anna Gerbrandy, *Addressing the Legitimacy Problem for Competition Authorities Taking into Account Non-Economic Values*, 40 EUR. L.REV. 769 (2015); Simon Holmes, *supra* note 33; Suzanne Kingston, *Integrating Environmental Protection and EU Competition Law: Why Competition Isn't Special*, 16 EUR. L.J. 780 (2010); SUZANNE KINGSTON, *GREENING EU COMPETITION LAW* (Cambridge University Press 2011); Suzanne Kingston, *Competition Law in an Environmental Crisis*, 10 J. EUR. COMP. L.&PRAC. 517 (2019); Erik Kloosterhuis & Machiel Mulder, *Competition Law and Environmental Protection: The Dutch Agreement on Coal-Fired Power Plants*, 11 J. COMP. L.&ECON. 855 (2015); José Carlos Laguna de Paz, *Protecting the Environment Without Distorting Competition*, 3 J. EUR. COMP. L.&PRAC. 248 (2012); Thomas Lübbig, *Sustainable Development and Competition Policy*, 4 J. EUR. COMP. L.&PRAC. 1 (2013); Giorgi Monti, *Four Options for a Greener Competition Law*, 11 J. EUR. COMP. L.&PRAC. 124 (2020); Giorgi Monti & Jotte Mulder, *Escaping the Clutches of EU Competition Law: Pathways to Assess Private Sustainability Initiatives*, 42 E.L.REV. 635 (2017); JULIAN NOWAG, *ENVIRONMENTAL INTEGRATION IN COMPETITION AND FREE-MOVEMENT LAW* (Oxford University Press 2016); Maarten Pieter Schinkel & Yossi Spiegel, *Can collusion promote sustainable consumption and production?*, 53 INT. J. IND. ORG. 371 (2017); Eva van der Zee, *Quantifying Benefits of Sustainability Agreements Under Article 101 TFEU*, 43 WORLD COMPETITION 189 (2020); Maurits Dolmans, *supra* note 33. Several agencies have entered into the debate by policy statements, such as the Dutch ACM *supra* note 3, the German Bundeskartellamt with its background paper on public interest and competition law, available at: https://www.bundeskartellamt.de/SharedDocs/Publikation/DE/Diskussionen_Hintergrundpapier/AK_Kartellrecht_2020_Hintergrundpapier.pdf;jsessionid=576D124E4992D51AA08B4A3DE857125A.1_cid390?__blob=publicationFile&v=2 (last accessed 5 October 2020). The Hellenic Competition Commission has launched a dialogue

courts the duty to consider the environment as an additional factor which might trump economic efficiency absent any further economic quantification. Eventually, these postulates argue to favour the less efficient solution if the benefit for the environment is greater than that associated with the more efficient counterfactual. The EU-Commission, in some cases, has tentatively and very briefly argued along the same lines when it considered sustainability to have the potential to offset consumer harm without any requirement of economic quantification.³⁵ What is characteristic of this type of solution is that there is no common unit of measure for balancing harm to consumers and benefit to the environment. It is a normative exercise, so the outcome is vastly outside the remit of economic science.

The other type of solution to the problem ventures to ascribe to the negative externalities, which the anticompetitive measure strives to counteract, a monetary value. This can relate to actual costs that society will incur in order to remedy the negative externalities that it will encounter later in time, such as the fight against the consequences of CO₂ emissions. Environmental economics has developed various tools to make such a measurement, what is often referred to as changes to total economic value. In a recent report commissioned by the antitrust authorities of Greece and the Netherlands, these methods and their applicability are discussed in detail.³⁶ Also the Commission has sometimes alluded to the idea of avoiding social costs as a benefit in antitrust analysis.³⁷

We cannot see that the academic discourse or the enforcement practice have already settled in on a full endorsement of either of these two streams of thinking. Both ways ultimately balance competitive considerations, as expressed in effects on consumer rent, against non-competitive effects in the form of potentially reduced harm to the environment. The law, as it stands, might however limit attempts to introduce non-competitive parameters into antitrust enforcement. Agencies and courts are constrained by the legal powers conferred upon them. Some authors argue that these powers, in the realm of antitrust, are dedicated to the protection of competition and thereby the enhancement of consumer welfare, not to the protection of the environment³⁸, which is a perception that also

on competition law and sustainability, available at <https://www.epant.gr/en/enimerosi/competition-law-sustainability.html> (last accessed 5 October 2020).

³⁵ The Commission has additionally argued that the cooperation would cause some degree of efficiency that contributed to achieving these benefits more economically, *see*, e.g. Commission 21 December 1994, Case IV/34.252, *Philips-Osram*, ¶ 27; Commission 17 September 2001, Case COMP/34.493 et al., *DSD*, ¶ 148. In its Horizontal Guidelines, however, the Commission alludes to contributions to qualitative efficiencies and cost efficiencies of sustainable products, and not to sustainability as an end in itself, when giving an example for a legal exemption of a sustainability agreement, *see* Guidelines on the applicability of Article 101 of the Treaty on the Functioning of the European Union to horizontal co-operation agreements, OJ 2011 C 11/1 ¶ 329.

³⁶ Roman Inderst, Eftichios Sartzetakis & Anastasios Xepapadeas, 2021, *Technical Report on Sustainability and Competition, report prepared for the Netherlands Authority for Consumers and Markets (ACM) and the Hellenic Competition Commission (HCC)*, available at: <https://www.acm.nl/en/publications/technical-report-sustainability-and-competition> (last accessed 08 February 2021). This report considers both methods that intend to measure changes to the welfare of affected individuals, which then need to be aggregated, and methods that consider policy goals, such as imposed caps, as a reflection of societal preferences.

³⁷ Commission 24 January 1999, Case IV.F.1/36.718, *CECED*, ¶ 56. This stance reflects the assessment principles for environmental agreements as set out in the Commission's old Horizontal Guidelines 2001, *see* Guidelines on the applicability of Article 81 of the EC Treaty to horizontal cooperation agreements OJ 2001 C 3/2, ¶ 188-198, where it was held that an exemption under Article 81(3) EC is possible if the "net contribution to the improvement of the environmental situation overall outweighs increased costs" (¶ 198).

³⁸ On that see, for example, Edith Loozen, *Strict competition enforcement and welfare: A constitutional perspective based on Article 101 TFEU and sustainability*, 56 C.M.L.REV. 1265 (2019); Stefan Thomas, *Normative Goals in Merger Control* (11 February 2020), Oxford Business Law Blog, available at: <https://www.law.ox.ac.uk/business-law-blog/blog/2020/02/normative-goals-merger-control> (last accessed 05

buoyed in the Commission's decision in the *Bayer/Monsanto* merger case³⁹. We note, however, that some scholars argue that these legal objections can be overcome.⁴⁰

This paper will not elaborate further on the inherent legal limitations that must be observed in the given context. In particular, we do not state that the aforementioned approaches are irreconcilable with the law as it stands,⁴¹ and also the opposite is not asserted. Both views can invoke their arguments. Still, as both positions start from asserting that the current approach has deficiencies, the scope of these deficiencies must be known. In other words, it must first be understood to what extent concerns for sustainability can be integrated into the consumer welfare paradigm. Understanding the boundaries of the consumer welfare paradigm within the given legal context, and showing how a potential gap in practice can be filled with appropriate economic methods, is precisely the object of the present article.

The proposal made here should, thus, not be considered as an alternative to other approaches that advocate a comprehensive integration of concerns for sustainability and, in particular, for environmental sustainability. Rather, our article strives to add to the antitrust toolkit in relation to sustainability goals without criticizing the existing ideas. We argue to exploit, to a larger extent, the dimension of time within the consumer welfare paradigm. This can be achieved by forecasting increases in WTP of future consumers, where necessary, in order to include this information into an ex ante effects assessment. The forecast of future changes in WTP and the current consumer WTP may be aggregated in order to obtain a unitary WTP figure. We acknowledge that, next to possibly choosing appropriate weights (discounting) for the aggregation over time, this also implies the setting of a definitive time horizon by the enforcer that defines the considered consumer cohort(s). We will expound on this problem further below.⁴²

We consider this approach to add to the existing suggestions of how to deal with sustainability in antitrust. Unlike the aforementioned ideas, our concept does not propose the integration of externalities per se, but rather takes the viewpoint of current and future consumers, that is their respective WTP. By that trait, the approach

October 2020); Okeoghene Odudu, *The Wider Concerns of Competition Law*, 30 OXFORD J. LEG. STUD. 599 (2010); Stefan Thomas, *Normative Goals in Merger Control: Why Merger Control Should Not Attempt to Achieve 'Better' Outcomes than Competition*, in COMPETITION ENFORCEMENT: IS THERE A FINAL FRONTIER? (Ioannis Kokkoris ed., Edward Elgar, forthcoming), available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3513098 (last accessed 5 October 2020).

³⁹ Commission 21 March 2018, Case M.8084, *Bayer/Monsanto*, ¶ 3022. The Commission referenced the legal intention of the antitrust provisions which confined it to a competitive assessment net of any sustainability consideration: "Further, recital 24 of the Merger Regulation clearly underlines that the objective of EU merger control is the protection of undistorted competition and that the control of mergers must be carried out only from the point of view of their effects on competition." Commission 21 March 2018, Case M.8084, *Bayer/Monsanto*, ¶ 3019, see also 3029.

⁴⁰ See, e.g., Simon Holmes, *supra* note 33; Suzanne Kingston, *Competition Law in an Environmental Crisis*, 10 J. EUR. COMP. L.&PRAC. 517 (2019).

⁴¹ The problem is part of a more general debate on whether and to what extent antitrust law can open up towards a recognition of indirect societal effects of competition. On that see Ioannis Lianos, *Polycentric Competition Law*, 71 CURRENT LEGAL PROBLEMS 161-213 (2018). Thibault Schrepel finds that such calls for direct considerations of environmental externalities fit into a general stream of public rhetoric towards an antitrust regime that gradually detaches itself from its original duty of protecting competition, Thibault Schrepel, *Antitrust Without Romance*, 13 N.Y.U. J.L. & LIBERTY 326, 428 (2020). See on the fundamental issues of social welfare justifications EINER ELHAUGE & DAMIEN GERADIN, *GLOBAL ANTITRUST LAW AND ECONOMICS* pp. 150 et seqq. (Hart Publishing 2007); CHRISTOPHER TOWNLEY, *ARTICLE 81 EC AND PUBLIC POLICY* (Hart Publishing 2009).

⁴² See *infra* IV.D.

remains within the confinements of competitive analysis and the consumer welfare paradigm. It is therefore less prone to overstepping the teleological boundaries of the antitrust laws. But we, again, acknowledge that this approach must, by definition, fall short of integrating total social costs and their potential reduction by a considered agreement.

As a next necessary step, we will outline our take on the dealings with posteriority in legal and economic terms. We venture to establish that it is possible, and legally required, to integrate the impact, which negative externalities can have on the WTP of future consumers, into consumer welfare analysis. This involves basically two fundamental posits: that any antitrust analysis must extend to the surplus of future consumers, and that it is technically feasible to model the increase in WTP of future generations and therefore to anticipate the impact of a measure on their surplus.

C. The legal posit of integrating future WTP into the analysis

As a legal starting point, we argue that antitrust must consider future consumers' rents to the extent that these can be modelled. As fact of the matter, all consumer welfare analysis is, by design, related to future consumers and their rents. There is no such thing as an existing cohort of consumers that can be distinguished from another, future cohort of consumers, with the former being relevant in effects analysis and the latter being irrelevant by definition. Even though current enforcement paradigms do not venture to assess a change in future WTP on a de facto basis, there is no legal reason or justification for keeping such effect on future WTP out of the balance (assumed it can be forecast in a given case).

Rather, any cooperation, unilateral conduct, or merger will precipitate effects that reach beyond the point in time at which these effects are measured. A cooperation or merger, which are cleared or prohibited in January 2020, will/would inflict price increases or produce benefits that accrue to consumers in February 2020, or in March 2027.⁴³ In any event, there is a great likeliness that immediately after the agency's or court's decision, the first potential consumer will have died and the next will have reached the age when he or she can make her own legally binding purchases. So, by definition, the "consumer" in effects analysis is not meant to refer to a specific living person, but rather to a type of actual or potential consumer as a group. This group is defined by its characteristics as actual or potential consumers in that market so that, despite the passage of time, the group remains the same, while the individuals, of which it is composed, change.

Also, the WTP even of the same person can change over time so that there is no static WTP that would be independent of exogenous factors, such as additional information, the media, and changes in societal

⁴³Of course, merger analysis or an ex-ante assessment of an agreement looks into the future, usually up to four years in merger cases (Commission 2 July 2014, Case M.7018, *Telefónica Deutschland/E-Plus*, ¶ 940; Commission 30 January 2013, Case COMP/M.6570, *UPS/TNT Express*, ¶ 906). Yet while quantitative merger assessment tools and efficiency assessments under the cartel prohibition strive to capture the impact of the merger/cooperation on market structure, price, quality and other supply side-related issues, WTP is usually held constant. We instead argue that WTP must also be checked for its propensity to change over time.

convictions, during the passage of time.⁴⁴ On the contrary, time, concomitant change of the outer world, and WTP are inextricably linked. A comprehensive consumer welfare approach should therefore account for these interdependencies.

In the following, we argue that such intertemporal balancing must be legally possible. Consumers at a later point in time must be considered even though their WTP might only become relevant in the future. We recognize that the Commission states that harm and benefit usually must relate to the same customers in order to be recognizable.⁴⁵ That, however, cannot serve as an argument against an intertemporal balancing. First, there would be no philosophical argument behind the posit that harm and benefit must relate to “identical” persons.⁴⁶ As outlined above, the common adage that harm and benefit must relate to the same consumer group is, most likely, influenced by matters of practicality in order to narrow down the scope of an effects-analysis.⁴⁷ In any event, it is not meant as a legal prohibition to consider the same type of consumer at a different point in time.⁴⁸ That can also be concluded from the fact that the consumer is merely a concept to describe a constantly changing group of people that is defined by common characteristics. The identity of this group is not shaped by the identity of the natural persons belonging to it, as alluded to above.⁴⁹ Moreover, the Commission concedes that a balancing relates to consumers on the same relevant market.⁵⁰ That criterion would, in any event, be fulfilled in the cases which are of interest here, since a market would usually remain the same despite the change in time. Finally, it must be recognized that, according to the jurisprudence, relevant benefits within the realm of competitive assessment can also relate to “society”.⁵¹ This broad notion is not confined to a specific point in time.

At this point it is expedient to address a possible objection to our approach. One might counter that the consumer welfare paradigm already entails an amount of balancing of harm and benefit that is difficult to handle and accept in itself.⁵² Extending this balancing exercise in a way so that it accounts for future changes in

⁴⁴Importantly, we do not envisage, however, a process in which a future manifestation of a consumer would reflect on past actions and would show, for instance, regret, which should then be incorporated in an overall estimation of “utility”.

⁴⁵Commission, Guidelines on the application of Article 81(3) of the Treaty, *supra* note 18 ¶ 43: “Negative effects on consumers in one geographic market or product market cannot normally be balanced against and compensated by positive effects for consumers in another unrelated geographic market or product market. However, where two markets are related, efficiencies achieved on separate markets can be taken into account provided that the group of consumers affected by the restriction and benefiting from the efficiency gains are substantially the same”, on that *see* Svend Albæk, *supra* note 16, 79.

⁴⁶*See* Svend Albæk, *supra* note 16, 79: “It seems somewhat difficult to defend the position of the Commission from a ‘philosophical’ point of view. Why are some customers/consumers (those inside the relevant market) seemingly more important than others (those outside)?”.

⁴⁷Svend Albæk, *supra* note 16, 79.

⁴⁸*See* already *infra* III.A.

⁴⁹*See* already *infra* III.A.

⁵⁰Commission, Guidelines on the application of Article 81(3) of the Treaty, *supra* note 18 ¶ 43.

⁵¹GC 7 June 2006, Joined Cases T-213/01 and T-214/01, *Österreichische Postsparkasse v. Commission*, ECLI:EU:T:2006:151, ¶ 115; CJ 17 February 2011, Case C-52/09, *Konkurrensverket v. TeliaSonera, AB* [2011] ECLI:EU:C:2011:83, ¶ 22 (referring to the “public interest”). Commission, Guidelines on the application of Article 81(3) of the Treaty, *supra* note 18 ¶ 85: “Moreover, society as a whole benefits where the efficiencies lead either to fewer resources being used to produce the output consumed or to the production of more valuable products and thus to a more efficient allocation of resources.”

⁵²On that *see* the seminal two articles by Rebecca Haw Allensworth, *The Commensurability Myth in Antitrust* *Vanderbilt Law Review* 1-69 (2016) and Herbert J. Hovenkamp, *Antitrust Balancing*, 12 *N.Y.U. Journal of Law & Business* 369 (2016). *See also* on balancing under the EUMR Stefan Thomas, *The Known Unknown: In Search*

consumers' WTP would make it even more complicated, less reliable and therefore could reduce the acceptance among enforcers, courts and firms. It is not the purpose of this proposal, however, to substitute an entirely new test for the established consumer welfare approach. Rather, we argue that, to the extent possible, future changes in consumers' WTP should be accounted for in order to render the outcomes of a consumer welfare analysis more precise. Our approach will therefore, most likely, become relevant in cases where a consumer welfare analysis net of an account for such changes does not yet yield clear results. Imagine that, upon analysis of contemporary consumers' WTP for enhanced sustainability in the fishing industry, the anticipated price increase, resulting from a sustainability agreement among fisheries, will be slightly above what sufficed to create a net consumer benefit for the currently existing consumers. In this instance we argue that it warrants closer examination whether an increase in future consumers' WTP, to the extent this can be forecast with sufficient precision, should be integrated into the analysis, thereby allowing approval of the measure for its overall beneficial effects on the entire cohort of consumers in the relevant foreseeable future, provided that the sustainability agreement could not be implemented successfully at a later point in time so that it should be allowed now.⁵³

Of course, a legal postulate to consider future consumers' WTP can only be made to the extent that such WTP can be estimated. In the following, we venture to outline ways to account for factors that might give rise to a change in consumers' WTP in the future. Depending on the facts of the case, this can allow a forecast and inclusion of WTP beyond the scope of what is recognized under existing enforcement paradigms. In that way, it might help, inter alia, to reflect societal change in regard to environmental concerns in a quantifiable way and to integrate it into effects analysis.

for a Legal Structure of the Significance Criterion of the SIEC Test, 13 Journal of Competition Law & Economics 346 (2017).

⁵³ On the definition of a limitation of the cohort within the dimension of time *see infra* IV.D.

IV. THE INTEGRATION OF CHANGE IN WTP INTO EFFECTS ANALYSIS

A. Organization

We want to establish, in the following, a conceptual blueprint for an extension of the consumer welfare paradigm to account for future changes in WTP. We do not intend, however, to provide a complete discussion of all aspects associated with this idea in any conceivable way. Also, our analysis will need to touch on various strands of the literature in economics and marketing cumulatively. It can thereby only briefly mention different methods that may be employed for the stated purpose.

Recall that we limit our welfare analysis to that of consumer welfare, albeit with a special focus on that of future consumers. Recall as well that, in order to make this relevant, there must be some persistent implications of current choices, e.g. an irreversible loss in biodiversity. To be at points more specific, it is useful to briefly recapitulate the preceding example. Take thus the case in which current production and consumption affect biodiversity in an irreversible way. Suppose, for the sake of simplicity, that fishing could be done “without a sustainability standard” (variant A) or “with a sustainability standard” (variant B), where the latter protects endangered species. At the moment, fish being produced in compliance with the standard and fish resulting from a production that does not follow the standard, may compete on the market. The considered agreement between fishing companies may envisage a ban of the former (variant A). Alternatively, variant B may not yet be on the market. Following our preceding discussion, in both cases we want to directly harness the preferences of consumers for products that satisfy or that do not satisfy the respective fishing standard in the example. These reflect both the perceived implications of such fishing standards on biodiversity and the preferences associated with biodiversity, though, as we discuss next, the ways how to elicit such preferences depend, amongst other things, on whether the respective products are already sold and purchased in the market.

Before we proceed, we acknowledge, again, two important points: First, we explicitly restrict our valuation exercise to consumers (rather than all concerned individuals). Second, we acknowledge that, when consumers have only limited information on the underlying causal relationship, WTP extracted from such choices will also reflect these limitations. We now proceed in two steps: First, we show how, in the literature as well as in practice, consumer preferences are estimated, including preferences for such attributes as biodiversity or animal welfare. Second, we propose ways on how to build on these methods so as to forecast changing consumer preferences and the resulting consumer welfare.

B. Eliciting and measuring preferences of current consumers

Before we turn to forecasting, we provide a more detailed discussion of how WTP from existing consumers can be extracted. Below we argue how this can provide a first step to forecast changes. The measurement of such (current) consumer preferences is a much-researched subject – and we refer to the relevant literature throughout. The applied techniques and methods vary significantly depending on the nature of the available data, such as: Does the set of data consist of individual observations or only of aggregate (demand) data? Does it comprise actual purchases or hypothetical decisions? Further, given the respective data, various statistical

techniques can be applied. For instance, marketing science relies much on the use of Bayesian methods⁵⁴, which are not common in economics. In what follows, we offer only a glimpse into these methods with the specific aim of indicating where there is scope for forecasting preferences of future consumers.

a) Data on the individual (choice) level

Specifically, we focus first on the case where there is availability of relatively disaggregated data on the level of individual choices. Such choices could be actual purchases. An analyst may have access to a panel covering individual purchases for a given group of consumers (or households). Often, such data is obtained from consumer household panels, as provided by marketing organizations such as GfK, Nielsen, or Kantar. In the example, this may cover purchases of fish products satisfying different standards (of fishing methods; our variants A or B). We note that when such data does not exist, one must rely on aggregate data, which may cover demand for various products as well as (average) prices.⁵⁵ Typically, such panel data also contains information about various sociodemographic characteristics, such as age or income. Moreover, an agency or a firm that makes the case for an agreement, may conduct a survey within the panel, which allows to retrieve consumers' attitudes and information.⁵⁶ The respective information, both on sociodemographics and on attitudes or information levels, can then be related to choices and extracted WTP, as will be outlined in more detail below.

Notably when the respective products are not yet on the market, actual purchase data cannot be used, one typically confronts subjects with hypothetical choices in a conjoint analysis.⁵⁷ Various techniques to prepare such choices and to present them to individuals are used in the literature.⁵⁸ Both with actual purchase data and with hypothetical choices, we note that the respective group of individuals may be made representative for the whole

⁵⁴In short, Bayesian methods presuppose for each coefficient an ex-ante distribution and use available data to update this distribution. Bayesian researchers therefore typically report the so-called posterior distribution of estimated coefficients. This differs from the derivation of a point estimator, potentially together with a confidence interval (which however cannot be given such a probabilistic interpretation).

⁵⁵ Demand models allowing to estimate consumers' preferences, notably also with respect to the consumers' sociodemographic characteristics, may, in fact, be estimated using both aggregate product-level data or disaggregated consumer-level data, as in the discussed example. For a discussion of different types of demand models see Aviv Nevo, *A Practitioner's Guide to Estimation of Random- Coefficients Logit Models of Demand*, 9 J. ECON. MANAG. STRATEGY 513 (2004). See also Peter Davis, *Empirical models of demand for differentiated products*, 44 EUR. ECON. REV. 993 (2000).

⁵⁶ When such a survey is conducted after the choices are made, the latter will not be confounded. On the difference between such a confounding of choices and providing context, see Roman Inderst & Stefan Thomas, *Reflective Willingness to Pay: Preferences for Sustainable Consumption in a Consumer Welfare Analysis*, 20 January 2021, available at: <https://ssrn.com/abstract=3755806> (last accessed 08 February 2021).

⁵⁷ Conjoint analyses have also been admitted as evidence before court, for instance to award damages for the infringement of a patent (e.g., United States District Court Northern District of California San Jose Division 2012, Expert Report of John R. Hauser - Case No. II-cv-01846-LHK, where Apple claimed damages and commissioned an expert report from Professor Hauser, a professor of marketing at MIT, who assessed consumers' willingness-to-pay for the plaintiff's, Samsung's, smartphones and tablets with and without the alleged patent-infringing technology).

⁵⁸ For a brief overview, in the context of bridging environmental with competition economics, see again Section III.4.2 in Roman Inderst, Eftichios Sartzetakis & Anastasios Xepapadeas, *Technical Report on Sustainability and Competition, A report jointly commissioned by the Netherlands Authority for Consumers (ACM) and Markets and the Hellenic Competition Commission (HCC)*, 2021, available at: <https://www.acm.nl/en/publications/technical-report-sustainability-and-competition> (last accessed 08 February 2021).

considered group of consumers on the basis of the additionally obtained sociodemographic information and by adding respective weights in the statistical analysis.

When a limited number of products, potentially even only two, are compared on a single attribute, such as the considered fishing standard, an immediate way to elicit a consumer's WTP would be to ask directly about the respective price premium that the consumer would be willing to pay for it. While such direct methods do have advantages and may perform reasonably well in practice, especially for the considered attributes, they may have drawbacks.⁵⁹ Respondents may overestimate their WTP for attributes that give them a „warm glow“, and they may fail to focus on the particular choice problem and the therefore rather limited impact on, say, the environment as a whole.⁶⁰ Turning to the second issue, still reflecting only hypothetical choices, economists would typically prefer incentivized choices, so that respondents' choices have actual consequences. For instance, respondents may, with some probability, end up having to purchase a product according to their made choices, which, of course, is only feasible if the respective products, with the required attributes of interest, exist. In applied contexts, such incentivization seems, however, to be rare.⁶¹

In summary, focusing on data at the individual (choice) level, we note, first, that there are various ways of how to obtain such data and, second, that there exists a large literature in economics and marketing that has developed techniques for all the involved steps. We now turn to the extraction of WTP from such data.

b) Extracting WTP and relating it to other observables

When WTP is not asked directly, it is extracted from choices by statistical methods. The standard point of reference is a so-called discrete choice model. The term “discrete choice” thereby simply refers to the fact that the modelled consumer choice is that between one of two or more discernible alternatives, i.e. typically reflecting different products that the consumer may wish to purchase. This differs from other (theoretical) models where the consumer's choice variable reflects continuous quantities of different goods. The model typically presumes that a consumer's indirect utility can be expressed as a (linear) function of an alternative's price and non-price attributes,

⁵⁹ Both, when only two products are compared, so that the difference in WTP can be easily reported, and when more products are compared, typically by letting respondents rank them, direct methods can be efficient. Generally, they are thought to perform reasonably well with frequently purchased, lower-priced products (of, thus, known value for the consumer). See also Section III.4.1 on contingent valuation methods in Roman Inderst, Eftichios Sartzetakis & Anastasios Xepapadeas, *Technical Report on Sustainability and Competition, A report jointly commissioned by the Netherlands Authority for Consumers (ACM) and Markets and the Hellenic Competition Commission (HCC), 2021*, available at: <https://www.acm.nl/en/publications/technical-report-sustainability-and-competition> (last accessed 08 February 2021).

⁶⁰ This is widely reported in the literature, cf. in relation to animal welfare: Richard M. Bennett, *Farm animal welfare and food policy*, 22 FOOD POLICY 281 (1997). The description of various methods to isolate “warm glow” or “whole-part” biases can be seen in: Richard M. Bennett & Ralph JP. Blaney, *Estimating the benefits of farm animal welfare legislation using the contingent valuation method*, 29 AGRIC. ECON. 85 (2003)

⁶¹ Typically, subjects in such incentive-aligned choice experiments exhibit, compared with those in hypothetical conditions, higher price sensitivity, and they are, which is important in the present context, less prone to adhere to socially desirable behaviour. For an experiment related to animal welfare cf.: Bailey F. Norwood & Jayson L. Lusk, *A calibrated auction-conjoint valuation method: Valuing pork and eggs produced under differing animal welfare conditions*, 62 J. ENVIRON. ECON. MANAGE. 80 (2011), and, more generally, Klaus M. Miller, Reto Hofstetter, Harley Krohmer & Z. John Zhang, *How should consumers' willingness to be pay be measured? An empirical comparison of state-of-the-art approaches*, 48 J. MARK. RES. 172 (2011) for a comparison of the performance of the different approaches.

including the respective standard (A or B). The respective coefficients for these attributes can be estimated.⁶² Setting the coefficient of a non-price attribute in relation to the respective coefficient for price allows to “monetize” the importance of the non-price attribute. This obtains a ceteris paribus change in WTP, such as when changing the sustainability attribute from A to B.⁶³

While often only an aggregate measure of WTP for a particular attribute is reported, it should be noted that the methods allow estimating the respective preference parameters on an individual level (or a distribution of it, in case of Bayesian approach). Commonly, for each observed individual one such parameter is then obtained, which may, in a second regression, then be related to other observables, such as individual attitudes or sociodemographic characteristics. Such a cross-sectional approach is widely adopted. For instance, it allows to relate income (of an individual consumer or of the respective household) to WTP.⁶⁴ Such a correlation must, however, be assumed with care as it may not be causal, which is important when using it, for instance, for forecasting purposes. Consumers who care more about their perception in society, for example, may both work more and thereby obtain a higher income and consume more expensive products, including those that contribute more to sustainability. If that is the case, the measured correlation between income and the willingness to buy such products would not reflect a causal relationship, which could be used to forecast changes in consumption based on changes in income. One way to establish causality is to consider a panel perspective, so that the association between income and WTP is only estimated through variations on the level of individual households. Marketing organizations like GfK or Nielsen increasingly grant access to long panels, exceeding 10 years, with a large fraction of households remaining within the panel for many years, so that such an analysis seems feasible.⁶⁵

⁶² Often, the respective statistical methods are referred to according to the distributional assumptions that are made (on non-observable factors that affect the actual choice decisions), such as the mixed logit model. Different assumptions are typically made (such as often that of a normal distribution) for the distribution of the coefficients for the different attributes (where the presumption of such individual “draws” from a distribution gives rise to the term “random coefficient models”).

⁶³ As the WTP is thus estimated via the ratio of attribute and price coefficients, this gives rise to specific problems and solution techniques (see e.g., Garrett Sonnier, Andrew Ainslie & Thomas Otter, *Heterogeneity distributions of willingness-to-pay in choice models*, 5 QUANT. MARK. ECON. 313 (2007)). In much applied work, the price coefficient is thus normalized to a particular value (one), which however does not allow for heterogeneity across consumers.

⁶⁴ For an example, see with respect to the data in the ACM’s chicken-of-tomorrow assessment, the analysis in Machiel Mulder, Sigourney Zomer, 2017, *Willingness to Pay for Broiler Welfare*, Journal of Applied Animal Welfare Science 20, 2, 137-154. There is in fact a large literature that estimates consumer preferences for ecological and animal welfare objectives and that relates these preferences to sociodemographic characteristics. The literature has found, albeit not consistently, a positive relationship with income, e.g., William J. Allender & Timothy J. Richards, *Consumer impact of animal welfare regulation in the California poultry industry*, 35 J. AGR. RESOUR. ECON. 424 (2010). See also the positive relationship with education, Laura M. Andersen, *Animal welfare and eggs—cheap talk or money on the counter?*, 62 J. AGR. ECON. 565 (2011) and age: Nik Taylor & Tania D. Signal, *Willingness to pay: Australian consumers and “on the farm” welfare*, 12 J. APPL. ANIM. WELF. SCI. 345 (2009). With respect to animal welfare, see also the meta-study in: Carl J. Lagerkvist & Sebastian Hess, *A meta-analysis of consumer willingness to pay for farm animal welfare*, 38 EUR. REV. AGRIC. 55 (2011). Interestingly, in the light of one of our leading example, Zander and Feucht (2018) find significantly different results with respect to sustainable fishing methods across different European countries. Katrin Zander & Yvonne Feucht, *Consumers’ willingness to pay for sustainable seafood made in Europe*, 30 J. INT. FOOD. AGRIBUS. MARK. 251 (2018).

⁶⁵ To be more precise, for each household one would then extract, e.g., for each year, a specific WTP estimate, so as to thereby build up a panel of such estimates. This extends the standard approach of relying on cross-sectional analysis. In fact, in more reduced-form models, which link, for instance, private-label consumption to income,

We note as well that, in order to model the relationship between other (sociodemographic) observables and WTP, the literature has developed models that differ from the aforementioned two-stage approach (where, first, WTPs are extracted and, second, these are then regressed on various other observables). So-called hierarchical Bayesian approaches stipulate such a relationship on the population aggregate (e.g., the mean values of the coefficients for the respective attributes) and extract this relationship simultaneously with the individual WTPs (or, stated more precisely, the respective posterior distributions).⁶⁶

C. Forecasting

When firms, for their own strategy purposes, forecast changes in demand, they are not confined to forecasting the development of consumers' preferences, let alone the distribution of WTP for particular attributes within a changing cohort of consumers. Instead, they may just rely on observed purchases and extrapolate recent trends. This, however, would be insufficient as a stand-alone approach for our intended purpose, given that an estimation of consumer welfare would not be performed, even though such information may be useful as an addition, as will be outlined below. Also, as we noted above, current practice in competition economics typically considers only a short time window and, more importantly, leaves WTP constant. Finally, our own survey of the literature in marketing generated only very few contributions (see below) that explicitly intend to *estimate* changes in preferences in a WTP-analysis.⁶⁷ Again, such a lack in contributions may be due to the limited interest from the perspective business strategy development. While, as we show in what follows, existing methodologies provide clear guidance on how to obtain such a forecast of (changes of) WTP, this article should also be seen as a call for more research in this area.

a) *Forecasting from extracted WTP*

The discussed methods allow to estimate consumer preferences, extracting the respective WTP for individual attributes, as well as the statistical relationship with, e.g., sociodemographic variables.

When consumers' preferences differ, *ceteris paribus*, with age, this may reflect a cohort effect, especially when it comes to preferences relating to matters of sustainability, as consumers of a different age may have been socialized differently (by media or peers). Suppose, now, that the identified cohort-effect on preferences was indeed causal and stable over the forecasting time horizon. As time proceeds, the relative importance of presently younger cohorts in the overall population of consumers should increase, and this increase is predictable. Given the thereby predicted change in relative weights of the different cohorts in the future, and applying the isolated preferences of different cohorts, this should, still under the preceding assumptions, allow a first tentative forecast

such an analysis has recently been performed, e.g., for the US by Jean-Pierre Dubé, Günter J. Hitsch & Peter E. Rossi, *Income and Wealth Effects on Private-Label Demand: Evidence from the Great Recession*, 37 MARKETING SCIENCE 22-53 (2018), and for the Netherlands Calogero Brancatelli, Adrian Fritzsche, Roman Inderst & Thomas Otter, *Measuring Income and Wealth Effects on Private-Label Demand with Matched Administrative Data*, 06 November 2020, available at: <https://ssrn.com/abstract=3642646> (last accessed 08 February 2021).

⁶⁶ For an example of a hierarchical model, see Peter E. Rossi, Robert E. McCulloch & Greg M. Allenby, *The Value of Purchase History Data in Target Marketing*, 15 MARKETING SCIENCE 321-340 (1996).

⁶⁷ Of course, there is a large literature, e.g., in evolutionary economics or ecological economics, that models changes in preferences and behaviour (e.g., as arising from changes in the environment or from social dynamics, including learning and adaptation).

of (aggregate) consumer preferences. Based on the obtained distribution of preferences, consumer surplus could thus be forecasted for different scenarios, such as increased prices for particular products or a producer-coordinated ban of, say, particular fishing practices.

As we noted above, aggregate consumer preferences and thus aggregate WTP may change not only because of a change in the composition of the considered cohort of consumers. Instead, also individual consumers may change their WTP. We already discussed how estimating a relationship between WTP for particular (sustainability) attributes and other observable and time-variant variables is indeed frequently done in the literature. One example is income. Again to the extent that such a relationship has a causal interpretation, which is more likely if it was derived in a (“within”) panel regression, it can be used for forecasting. Now, plugging forecasts for these explanatory variables into the estimated relationship with WTP, we obtain our forecast of (changed) individual WTPs, which then can be aggregated. As noted above, other observable variables may relate to those obtained from a survey among the same individuals for which choice data is collected, which may then report specific attitudes. To the extent that we learn from other studies about trends in such attitudes, this may again be combined for forecasting. Such changes at the societal level, for which possibly also only aggregate information is available, may however better be included into a model of population dynamics, to which we return below.

b) Forecasting using modified choice contexts

The former discussion referred, first, to changes in aggregate consumer preferences that are derived from the relatively greater importance of new cohorts of consumers. In addition, we suggested to model and forecast changes in WTP that derive, in particular, from predictable changes in sociodemographics. Consumers may, however, also change preferences for one product over the other due to other reasons, most importantly, as we have discussed, as they receive additional information or as they adopt to changes in societal norms. We now discuss a different approach on how to use this insight to forecast changes in WTP.

When obtaining data from hypothetical choices by way of a conjoint analysis, the analyst can retrieve additional information, such as on a subject’s information or attitudes, and she can modify the context of the choice setting. Such a modification could be scientific information that is provided regarding the impact of fishing methods on biodiversity. This would allow to estimate a relationship between the availability of such information and WTP.⁶⁸ This may be combined with a forecast on how such information increases over time. Alternatively, as the choice context is hypothetical anyway, the choice could be embedded in a different context, varying for instance information on the presumed choices of other consumers. There are various reasons for why this may affect an individual choice. Also, to the extent that the extracted statistical relationship holds when, e.g., through the agreement such a shift of consumption is indeed observed, it is again helpful to forecast individual WTP.⁶⁹

⁶⁸ Of course, the provision of such information also gives rise to a particular “priming”, which may be regarded as confounding the elicitation of “true” preferences. We acknowledge the dependency of elicited preferences on the overall context, but we do not agree with the conclusion that there exist context-free choices, from which such “true” or “objective” preferences could be extracted (see Roman Inderst & Stefan Thomas, *Reflective Willingness to Pay: Preferences for Sustainable Consumption in a Consumer Welfare Analysis*, 20/01/2021, available at: <https://ssrn.com/abstract=3755806> (last accessed 08 February 2021)).

⁶⁹ With respect to preferences regarding sustainability, we may indeed suppose that these are subject to societal norms, which may again be learnt from the behaviour of others. This relates to the larger context of “socially embedded preferences” (see, e.g., Annex 9.1 in Partha Dasgupta, *The Economics of Biodiversity: The Dasgupta Review* (London: HM Treasury 2021)).

In sum, rather than modelling and estimating the relationship between WTP and other observable variables from a time series of choice observations, such a relationship may be extracted from modifying the context in a hypothetical choice experiment. We are, however, aware that the thereby obtained forecast on future WTP also needs to be thoroughly checked for its validity and robustness.

c) Harnessing additional data and information on the overall population

For the purpose of this article, we restricted attention to the estimation of future consumer preferences on the basis of individual (discrete choice) data, be it from actual purchase choices or from hypothetical choices. This allows to build on established techniques in economics and marketing. We suggested to use this for forecasting by varying the composition of consumers with different characteristics, exploiting thereby an identified statistical relationship with consumer valuation for the attribute of interest, by essentially “plugging in” forecasted changes in observables, such as income, into the estimated relationship with WTP, or by extracting the relationship that is used for forecasting by modifying the context in a hypothetical choice experiment. We acknowledge that all obtained results need to be checked for validity and robustness, and that the proposed methods rely on various assumptions, such as that some identified association with WTP remains robust over time.

Even when such data on an individual level is available, there may still exist the potential to harness information on a more aggregate level. This could comprise information from a survey documenting a shift in attitudes as well as individual sensitivity to issues of sustainability. Or it may comprise sales data on different products which share relevant traits with the products under consideration. Such information should also be useful, and we briefly sketch an avenue for future research. To our knowledge, only very few contributions have indeed tried to extract WTP from a panel of observed choices in a model that explicitly takes into account changes in preferences that do not relate to changes in observed sociodemographics, but that relate to more aggregate changes, such as changes in societal norms.⁷⁰ Such an approach could postulate that aggregate (mean) population preferences follow a particular (stochastic) process, which may again be related to other observables. For instance, it may be presumed that aggregate preferences for a particular sustainability attribute may be related to other available measures of the importance that society, in the aggregate, attributes to the environment and for which forecasts exist. We note that this approach allows for individual preferences to differ, though it is assumed that they undergo a similar or even the same shift.⁷¹

⁷⁰ See Jin Gyo Kim, Ulrich Menzefricke & Fred M. Feinberg, *Modeling Parametric Evolution in a Random Utility Framework*, 23 JOURNAL OF BUSINESS & ECONOMIC STATISTICS 292-294 (2005), and Mohamed Lachaab, Asim Ansari, Kamel Jedidi & Abdelwahed Trabelsi, *Modeling preference evolution in discrete choice models: A Bayesian state-space approach*, 4 QUANTITATIVE MARKETING AND ECONOMICS 57-81 (2006). It should be noted that these papers are mainly concerned with providing a more flexible estimation approach when choices are observed over time, rather than using this for forecasting.

⁷¹ This, of course, imposes considerable homogeneity in the shift of individual preferences. For an alternative recent approach see Ryan Dew, Asim Ansari & Yang Li, *Modeling Dynamic Heterogeneity using Gaussian Processes*, 57 JOURNAL OF MARKETING RESEARCH 55-77 (2019).

D. Weighing, aggregating and balancing WTP over time

To integrate consumer welfare over time, we obviously need to weigh the respective periods of time and consumer cohorts.⁷² This poses fundamental questions of its own. Whether and to what extent should future benefits and costs be discounted, which is the common procedure, both for financial analysis and for intertemporal utility maximization in economics? Which discount factor should be used – and should this also reflect uncertainty about the future? We are aware of the fact that our approach implies judgments on these determinants. Also, when integrating future generations of consumers into the balancing, the researcher or enforcer must know where to stop the extension on the time vector. How far to look into the future?

Since this paper is only intended to outline the basic idea of prospective WTP analysis with respect to sustainability, we do not yet want to furnish definitive conclusions on these topics. We want to emphasize, however, that these issues most likely can be solved, and that they are not uncommon challenges for antitrust effects assessment. Already under the existing consumer welfare paradigm, it is necessary to attribute weight to the rents of consumers that are positively or negatively affected.⁷³ It will usually not be the case that the very people that achieve benefits through a restriction of competition are fully identical with those upon which harm is inflicted.⁷⁴ Therefore, the default rule is that the rent of each consumer has equal weight.

When it comes to the dimension of time, the existing consumer welfare paradigm is already exposed to the challenge of defining a limit for effects prognosis. Merger analysis, for example, is usually confined to a time period of up to four years beginning from the point in time when the substantive analysis takes place.⁷⁵ This is due to the fact that any prognosis of price effects or impacts on quality, on allocative efficiency or dynamic efficiency becomes increasingly difficult the further it is extended into the future. In this case, the limitation, therefore, is determined by the feasibility of a prognosis. In a similar vein, the adopted time horizon for a forecast and overall integration of WTP may be influenced by the quality of the forecast, including that of the data available. In specific cases, the determinants for WTP and its changes may be isolated with a sufficient degree of reliability. Also, additional data may strengthen the case for, notably, a progressive and robust change in society's and also consumers' preferences. These considerations may thus also affect the admissible length of the considered time horizon. Yet, as mentioned before, we want to leave these issues to the further debate, since we do not think that a definitive answer is conditional for establishing our concept.⁷⁶

⁷² See *supra* III.B.

⁷³ See on the discounting of cost efficiencies in relation to future consumers Commission, Guidelines on the application of Article 81(3) of the Treaty, *supra* note 18 ¶ 88.

⁷⁴ See *supra* II.B. and III.C.

⁷⁵ Commission 2 July 2014, Case M.7018, *Telefónica Deutschland/E-Plus*, ¶ 940; Commission 30 January 2013, Case COMP/M.6570, *UPS / TNT Express*, ¶ 906.

⁷⁶ On discounting within a social welfare analysis, see Section III.8 in Roman Inderst, Eftichios Sartzetakis & Anastasios Xepapadeas, *Technical Report on Sustainability and Competition, A report jointly commissioned by the Netherlands Authority for Consumers (ACM) and Markets and the Hellenic Competition Commission (HCC)*, 2021, available at: <https://www.acm.nl/en/publications/technical-report-sustainability-and-competition> (last accessed 08 February 2021).

V. CONCLUSION AND OUTLOOK

We have ventured to outline an approach on integrating sustainability into antitrust assessment. We suggest to take the viewpoint of future consumers in relation to sustainability features of products in order to gauge the net impact of a measure on aggregated consumer welfare. We have outlined that such an extension of the consumer welfare paradigm into the dimension of time, to the extent to which possible, reconciles with the legal foundations of antitrust assessment. In addition, we have outlined a combination of tools from economics and marketing literature which can allow for a prognosis of future consumers' WTP in relation to sustainability features, albeit this not being exhaustive. Also we have, in particular, sketched avenues for research to fill the gap in existing methodology.

Our approach stays within the design principles of the consumer welfare paradigm, thereby reconciling with the established teleology of the antitrust laws. It is thus, presumably, less exposed to possible legal objections against an integration of non-economic interests into antitrust assessment. Yet we also acknowledge its limitations, such as its neglect of externalities, in particular also on non-consumers. It might therefore add another facet to the debate on the dealings with market outcomes on future generations, which has become one of the pressing issues of our time.