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An empirical legal investigation of online price discrimination

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Consumer perspectives II: discrimination grounds^{*}

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5.1 INTRODUCTION

This chapter investigates consumer fairness perceptions regarding segmentation bases and the extent to which these perceptions line up with grounds currently prohibited in law (RQ4: What are consumers' fairness perceptions of segmentation bases and to what extent do they line up with grounds currently prohibited in law?). Section 5.2 provides the contextual background for this chapter, which is that the current legal framework provides a list of prohibited grounds but there are many other grounds that can be used for personalized pricing that are not (yet) prohibited. Section 5.3 reviews the theoretical and legal framework, providing a recap of legally prohibited grounds (Section 5.3.1) and the need for reconsideration (Section 5.3.2). Section 5.4 discusses the methodology used for the survey research. Section 5.5 presents the research results. Section 5.6 discusses the implications of the findings of our study, particularly the extent to which there is a gap between the current legal landscape and the perceptions of consumers, and whether the legal framework should be reconsidered, including avenues for future research. Section 5.7 provides conclusions.

5.2 BACKGROUND

Empirical research and anecdotal evidence indicate that discriminatory pricing often meets with resistance from consumers. They generally view the practice as unfair and deem it to be illegal.¹ Some examples, although deeply rooted in our daily lives, still raise debates about acceptability and fairness. As followed from Chapter 4, social norms are an important explanation why some practices are deemed more (un)fair than others. Consumers that perceive a pricing practice to violate a social norm, react negatively towards the company, such as lower purchase intentions and loss of trust.²

The current European legal framework provides certain boundaries regarding the grounds that are permitted in setting personalized pricing. Anti-discrimination law and data protection law protect certain 'sensitive' characteristics and fundamental choices that cannot be changed, or at least not without high damage to one's core identity, such as religion, gender and sexual orientation.³ Legal grounds can be changed by legislators, to better reflect existing norms and perceptions in society: for example, the Netherlands recently added disability and sexual orientation as legally protected discrimination grounds to its national constitution.⁴ The use of such grounds in personalized pricing would constitute (in)direct discrimination and likely elicit negative reactions from consumers.

Even if companies make efforts not to include such sensitive (synthetic) data in their analyses, the technology used can still indirectly lead to the systematic disadvantaging of

¹ Turow, Feldman & Meltzer 2005; Poort & Zuiderveen Borgesius 2019; Priester, Robbert & Roth 2020.

² Campbell 1999; Garbarino & Lee 2003. See Chapter 4 for a more comprehensive discussion of the role of social norms in consumer fairness perceptions.

³ Clarke 2015; Khaitan 2015. See Chapter 2 for a more comprehensive review of the boundaries that flow from the EU legal framework.

⁴ Corder 2023.

certain (groups of) consumers.⁵ In other words: ‘insensitive’ (non-legally prohibited) data can show strong associations with sensitive or legally prohibited data. Moreover, some ‘newer’ grounds or profiles that could be used for personalized pricing, such as intelligence or browsing activity, could also constitute similar immutability and vulnerability or are at least not within a person’s control, which could warrant further regulatory protection.⁶ In order to assess to what extent the current legal framework is aligned with social norms and perceptions surrounding personalized pricing, it is imperative to study existing fairness perceptions regarding both legally prohibited and permissible grounds.

The literature tends to pay little attention to the various grounds for discrimination on the basis of which prices can be personalized. There is work that has explored consumer perceptions of personalized pricing,⁷ as well as some specific non-prohibited grounds (e.g., location, device type, purchase history) for personalized pricing.⁸ Yet, a more comprehensive review of perceptions regarding discrimination grounds – legally prohibited or not – is missing. While some grounds and the processing thereof are protected under data protection law and anti-discrimination law, the question remains how well the legally-protected grounds align with consumer (un)fairness perceptions, and whether new grounds may need to be prohibited in the future – especially given that these new segmentation criteria (i.e., discrimination grounds that are not legally prohibited) could still have (unforeseen) legally discriminatory outcomes.

Therefore, the aim of this research is twofold. First, it provides a comprehensive overview of consumer perceptions regarding known grounds that can be used to personalize prices. Here, I do not only analyze grounds that are already prohibited or declared sensitive by law, but also perceptions regarding ‘new’ grounds (i.e., grounds that have more recently come to play and are not legally prohibited), as they are heavily intertwined.⁹ Second, using this overview, I examine whether there is a gap between perceptions of discrimination grounds that are prohibited, and those that are not legally prohibited. The findings provide input for the discussion on the extent to which current legislation offers appropriate safeguards against personalized pricing and which grounds, if any, should be better protected in the future.¹⁰

⁵ Calders & Žliobaitė 2013.

⁶ Wachter 2023.

⁷ Turow, Feldman & Meltzer 2005; Poort & Zuiderveen Borgesius 2019.

⁸ Priester, Robbert & Roth 2020; Hufnagel, Schwaiger & Meritz 2022.

⁹ Solove 2023.

¹⁰ Van der Rest et al. 2020.

5.3 LITERATURE REVIEW

5.3.1. *Legally prohibited grounds of discrimination*

The current European legal landscape does not explicitly prohibit personalized pricing; the only direct mention of personalized pricing can be found in the Omnibus Directive and CRD, on the basis of which companies are required to disclose use of automated personalized pricing to consumers.¹¹ There are two concrete starting points for protected or sensitive grounds for price discrimination, which can be found in anti-discrimination law and data protection law. I will zoom in on the Dutch constitution and its enumeration of discrimination grounds, as it was recently updated to include new grounds of discrimination.

Non-discrimination is a fundamental right and principle that has been influential in shaping European legal standards. The principle of equal treatment is protected in – among others – Article 21 CFEU, which states that any discrimination shall be prohibited and provides a non-exhaustive enumeration of fourteen discrimination grounds, more than any national constitution of European Member States.¹² The discrimination grounds mentioned include sex, race, genetic features, religion, disability, and age. The rationale behind these protected characteristics is to protect both immutable characteristics (i.e., characteristics that were not chosen and cannot be changed, or at least not without high damage to one's core identity), such as gender and ethnicity, and fundamental choices, such as religion.¹³

The Dutch national constitution provides a similar non-exhaustive enumeration, although with less examples listed. Article 1 of the national constitution (Grondwet) states that all persons in the Netherlands shall be treated equally in equal circumstances. Discrimination on the grounds of religion, belief, political opinion, race or sex or any other grounds whatsoever shall not be permitted. As of 2023, the Dutch constitution includes two new grounds of discrimination: disability and sexual orientation.¹⁴ The Equal Treatment Act (AWGB), which dates from 1994 and constitutes secondary legislation, further elaborates on Article 1 of the constitution. The AWGB prohibits making a distinction on the basis of an exhaustive enumeration of sensitive criteria. The most fundamental objective of this Act is the protection of human dignity, more specifically to promote equal participation in society, without being subjected to discrimination or exclusion on the basis of personal characteristics.¹⁵

The exhaustive enumeration in Article 1 prohibits discrimination on the basis of religion, belief, political opinion, race, gender, nationality, sexual orientation, and marital status. In

¹¹ See Article 4 Omnibus Directive and Article 6 CRD.

¹² Formally, the scope of the CFEU is restricted to EU institutions when implementing EU law (Article 51 CFEU). However, the CJEU has recognized horizontal direct effects. See ECJ 17 April 2018, C-414/16, ECLI:EU:C:2018:257 (Vera Egenberger), §81. See also Recital 75 of the GDPR.

¹³ Clarke 2015; Khaitan, 2015.

¹⁴ Corder 2023.

¹⁵ Preamble AWGB.

later subordinate legislation some additional grounds were added, including disability or chronic illness, age, and type of employment contract.¹⁶ It is important to note that throughout European constitutions, there exists a clear lack of harmonization of discrimination grounds and whether an exhaustive or non-exhaustive enumeration is used.¹⁷ For instance, wealth and social status are a protected characteristic in 11 out of 27 Member States but are not mentioned in Article 21 CFEU.

In addition to anti-discrimination law, data protection law also provides legal boundaries to the use of certain grounds in personalizing pricing. Articles 9 and 10 GDPR prohibit the processing of ‘sensitive’ personal data, namely trade union membership, genetic and biometric data, health data and criminal convictions, given that the exemptions of Article 9(2) do not apply.

5.3.2. Reconsidering price discrimination grounds

Apart from grounds that are legally protected, there are many segmentation bases conceivable (e.g., loyalty status, intelligence/education level, income) which are not protected in anti-discrimination or data protection law.¹⁸ Grounds that companies have started to use for example include physical appearance and battery level.¹⁹ While these grounds are permissible, they can lead to consumer backlash; when consumers deem them unfair and exploitative, there can be a sudden and strong reaction against it in social media. However, little attention has been paid to the (legal) implications of the plethora of (new) segmentation grounds on which personalized pricing can be based online, beyond a call to broaden the consumer backlash and corporate social responsibility (CSR) literature to include personalized pricing,²⁰ and a study that explored why companies are reluctant to use personalized pricing online.²¹ Given a lack of harmonization of protected grounds across national constitutions, the risk of unintended or indirect discrimination, and consumer unfairness perceptions, a reconsideration of the current legal framework nonetheless seems warranted. There are three main arguments that point towards a reconsideration of the current legal framework.

First, the level of protection provided against discrimination varies across Member States in terms of the number of grounds listed, but also the wording of the enumeration – some Member States provide exhaustive enumerations of grounds, while others provide a non-exhaustive enumeration, or even no enumeration at all.²² Although the Dutch constitu-

¹⁶ Wet gelijke behandeling op grond van handicap of chronische ziekte (WGBH/CZ) 2003; Wet gelijke behandeling op grond van leeftijd bij arbeid (WGBL) 2004; Wet onderscheid arbeidsduur (WOA) 1996; Wet onderscheid bepaalde en onbepaalde tijd (WOBOT) 2002.

¹⁷ Custers 2023.

¹⁸ Baker, Marn & Zawada 2001; Tannock 2008; Maxwell & Garbarino 2010.

¹⁹ Hern 2020; Natelhoff 2023.

²⁰ Van der Rest et al. 2022.

²¹ Heidary et al. 2022.

²² Custers 2023.

tion was recently updated and two grounds were added to reflect developments in society, it takes much time and effort to update national constitutions to reflect such changes. This raises questions regarding the robustness of existing legal frameworks in relation to developments in the technology surrounding personalized pricing. There has been quite some skepticism regarding whether national constitutions can (and should) keep up with societal developments.²³ This raises the question whether perhaps other modes of regulation are more suitable to deal with the challenges associated with personalized pricing, such as the constantly changing grounds on which a personalized price can be based.

Second, there is a risk of unintended or indirect discrimination. In the case of direct discrimination, a legally prohibited ground is decisive for the unequal treatment, for example, refusing to sell a product to a male customer because of his gender. In the case of indirect discrimination, a seemingly neutral ground leads to a distinction that asserts the same effect as direct discrimination. This distinction can be either intentional or unintentional.²⁴ Regardless of whether this effect is intentional or not, direct and indirect discrimination are prohibited in most jurisdictions.²⁵ Indirect discrimination can be difficult to prevent, discover and enforce. Even if companies do not directly use sensitive data in their analyses, neutral characteristics can still be correlated to sensitive characteristics.²⁶ For example, companies can infer health data, income and protected demographics from consumers' purchasing habits.²⁷ Furthermore, it is difficult to discover what the actual reason for a price fluctuation is and enforce accordingly – if a price fluctuation is even observed at all.²⁸ Scholars have proposed developing discrimination-aware data mining tools, to counter the difficulties associated with the opacity of the technologies used in data analysis.²⁹

Third, the instances of personalized pricing that have come to light, many of which used 'new' grounds for personalization, were met with much consumer backlash.³⁰ When asked about their perception of the practice, consumers report high unfairness perceptions; they deem the practice to be unethical and illegal.³¹ Research has shown that consumers deem some grounds to be more unfair than others and that there are nuances in perceptions of fairness.³² For instance, personalization based on device type is deemed more unfair than location-based discrimination.³³ Pricing based on location, in turn, is deemed less fair than

²³ Gerards 2016.

²⁴ Dinur 2021; ECHR 2022.

²⁵ Van Bekkum & Zuiderveen Borgesius 2023.

²⁶ Calders & Žliobaitė 2013; Solove 2023.

²⁷ Duhigg 2012; Solove 2023.

²⁸ Mikians et al. 2012; Hannak et al. 2014.

²⁹ Berendt & Preibusch 2017.

³⁰ Rosencrance 2000a; Rosencrance 2000b.

³¹ Turow, Feldman & Meltzer 2005, Poort & Zuiderveen Borgesius 2019.

³² See also Chapter 4.

³³ Hufnagel, Schwaiger & Meritz 2022.

purchase history as a discriminatory ground.³⁴ However, a complete overview that considers legally prohibited grounds as well as some newer grounds, is still missing.

What is perceived to be fair, may strongly depend on existing societal norms, as well as personal norms.³⁵ In general, the perception of unfairness flows from the perception that decisions about an important element of a transaction (i.e., the price) are made with generally low transparency, and on the basis of seemingly arbitrary – or at least for a large part immutable – characteristics.³⁶ A violation of (perceived) pricing norms has been shown to lead to unfairness perceptions.³⁷ Unfairness perceptions, in turn, may have far-reaching consequences, such as a decrease in consumers' trust in the digital market, as well as less intention to participate in the digital market.³⁸

It is therefore imperative to explore what the current existing norms and fairness perceptions surrounding personalized pricing are, to assess the extent to which they align with the existing legal framework for discrimination grounds. These findings add to the discussion on the extent to which legal regulation can address these fairness concerns and reflect existing (and future) norms.³⁹ As some scholars suggest, altering the existing enumeration of sensitive data might be a dead end, as non-sensitive data are so heavily intertwined with sensitive data.⁴⁰ Solove (2023, p.44) suggests that (privacy) law must focus on the harms and risks rather than the nature of pre-defined personal data, 'where harm involves negative consequences from the collection, use or transfer of personal data that affect individuals or society [...] risk involves the likelihood and gravity of certain harms that have not yet occurred.' While it is complex to assess the degree of harm inflicted by the use of grounds for personalized pricing, assessing consumer perceptions in terms of, for instance, their trust in the digital market, can provide insight in the degree of harm that may be inflicted. A low degree of trust could cause existing consumers to withdraw or decrease their participation in the online market.⁴¹

5.4 METHOD

5.4.1. *Sample*

To examine consumers' perceptions of various grounds of personalized pricing, I conducted a survey via a national online panel to represent the Dutch online population, aged 18 years and older. I recruited 957 participants, who were rewarded with €2.25 for taking part. I excluded 204 participants who did not finish the complete survey (n = 102) or did not pass

³⁴ Priester, Robbert & Roth 2020.

³⁵ Garbarino & Maxwell 2010.

³⁶ Miller 2014.

³⁷ Maxwell 2002.

³⁸ Garbarino & Lee 2003.

³⁹ Van der Rest et al. 2020; Van der Rest et al. 2022.

⁴⁰ Solove 2023.

⁴¹ OECD 2015.

the attention check ($n = 102$). In addition, I manually excluded 26 respondents who had either a critical z-score value (above ± 3.29 SD) for the time spent on the page on which the grounds were listed or straight-lined their answers. I verified that the participants who we excluded were not significantly different from those we did not exclude. I tested for gender, age, education, and income differences, using t-tests and chi-square tests, and found no significant differences between these two groups, meaning that I could continue with the analysis.

The final sample consisted of 727 participants. The average age was 34.6 years ($SD = 7.7$) and 62.7% was female. More than half of the participants had attained higher education (40,6% higher vocational training), and 31.3% of all participants indicated a gross household income of more than €50,000 per year.

5.4.2. Procedure and design

I surveyed consumer perceptions ($n = 727$) of discrimination grounds used in personalized pricing.⁴² The survey was translated from English to Dutch using back-to-back translation.⁴³ The online survey consisted of three parts: (1) demographic questions, (2) questions regarding discrimination grounds, and (3) concluding questions. It took about six to seven minutes to complete the survey.

Regarding the second part, participants they were shown an information page where the setup of this part of the survey was explained. The page explained that companies increasingly experiment with prices, which can result in a higher or lower price for different consumers, and that on the next page participants would be shown various grounds on which companies can segment prices. The grounds were introduced with examples. For instance, the ground 'religion' was accompanied by the examples 'Christian', 'Muslim', 'Jew'. 'Atheist', etc. Participants' perceptions of these grounds were measured along five dimensions.

As for the grounds, I compiled a (non-exhaustive) list of twenty-five grounds, based on the Dutch and European legal frameworks, anecdotal evidence of personalized pricing, and 'new' grounds mentioned in the literature (see Appendix 5).⁴⁴ I divided these grounds into five groups of five grounds, assuring a balanced combination of legal and non-legal grounds per group. The rationale behind this choice was that since I was going to ask participants about their perceptions on five different dimensions, rating five times twenty-five grounds would strain participants in terms of attention span and ability to compare grounds. To avoid response bias, I thus employed a between-subjects design, where I randomly assigned

⁴² See Appendix 6 for the full survey.

⁴³ Brislin 1970. This method is also called reverse translation and involves translating the translated content back into the source language. In this case, it entailed translating the survey text from English to Dutch, and then translating the Dutch translation back into English by a different researcher. This method helps ensure that the original meaning of content is preserved when translated.

⁴⁴ For sources containing mentions of (both anecdotal and hypothetical) discrimination grounds, beyond the grounds mentioned in legislation, see for example Baker, Marn & Zawada 2001; Garbarino & Maxwell 2010; Hern 2020; Ganty & Benito Sanchez 2021; Solove 2023; Custers 2023; and Natelhoff 2023.

the participants to one out of five groups. Moreover, considerable effort was devoted to ensure the comparability of the grouped samples.

Table 5.1 provides an overview of the twenty-five grounds and five groups. I tested the groups in terms of differences in demographics and their reported internet usage and online purchase behavior, to ensure that the randomization was successful. I found no significant differences between the groups, which meant that the participants were distributed randomly across groups.

Table 5.1. Overview of grounds per group

| Group 1 | Group 2 | Group 3 | Group 4 | Group 5 |
|-------------------|-----------------------------|------------------------|------------------------------|---------------------------------|
| <u>Religion</u> | <u>Ideology/Philosophy</u> | <u>Political views</u> | <u>Race/Ethnicity</u> | <u>Nationality</u> |
| <u>Gender/Sex</u> | <u>Sexual orientation</u> | <u>Marital status</u> | <u>Impairment/Disability</u> | <u>Health data</u> |
| Device type | Location | Browsing activity | Student status | <u>Criminal record/offences</u> |
| Purchase history | Social media data | Loyalty status | <i>Income/Wealth</i> | <u>Age</u> |
| Intelligence | <i>Socioeconomic status</i> | Photo/Appearance | Battery percentage | Browser type |

Note: The underlined grounds are legally prohibited either in the European legal framework or in the Dutch constitution. The grounds in *italics* are legally prohibited in some other national constitutions in the EU. The remaining grounds flow from literature and are not (yet) legally prohibited. I aimed for a balanced distribution of legally prohibited and legally permitted grounds per group.

5.4.3. Measures

Participants were first asked basic demographic questions (i.e., age, gender, income, education level). The five (single-item) dimensions of the second part of the survey were drawn from previous research on consumers' (price) fairness perceptions and attitudes towards company behavior.⁴⁵ I assessed consumer reactions to the discrimination grounds along the following dimensions: perceived fairness, alignment with personal norms, alignment with social norms, legality, and trust in markets. All items, unless otherwise indicated, used a seven-point Likert scale, with 1 = strongly disagree and 7 = strongly agree (See Appendix 6).

To assess consumer perceptions of fairness, I drew from Poort & Zuiderveen Borgesius (2019) and gave participants the following statement: 'The use of this ground for setting prices is fair', which they had to answer for each of the (five) grounds. For perceived alignment with personal and social norms, I drew inspiration from Garbarino & Maxwell (2010), who studied the effect of the belief that a given pricing practice is a norm of (American) society on, among others, fairness perceptions.⁴⁶ To explore to what extent participants thought the use of grounds aligned with their personal norms, participants were asked to indicate to what extent they agreed with the following statement: 'Personally, I find it acceptable to base prices on this ground'. I assessed participants' perceived alignment of a ground with existing

⁴⁵ Grewal, Hardesty & Iyer 2004; Martin, Ponder & Lueg 2009; Garbarino & Maxwell 2010; Poort & Zuiderveen Borgesius 2019; Priester, Robbert & Roth 2020; Hufnagel, Schwaiger & Meritz 2022.

⁴⁶ Garbarino & Maxwell 2010.

societal norms with the following statement: ‘In society, it is considered acceptable to base prices on this ground’. To identify how participants assessed the legality of a discrimination ground, I drew from Turow et al. (2005) and included the following statement: ‘The use of this ground for setting prices should be legally prohibited’. Finally, to explore to what extent the use of certain grounds would diminish participants’ trust in the digital market, I proposed the following statement: ‘The use of this ground for setting prices would diminish my trust in the market’. The trust measure was added as a dimension to empirically examine the concern that has been raised in literature, namely that perceptions of unfairness can lead to a loss of trust in not only companies but also the digital market, which could in turn lead to diminished participation in the digital market.⁴⁷ Trust in seller has been empirically examined,⁴⁸ but trust in market to my knowledge has not.

Participants were also asked a series of concluding questions in the third part of the survey. I measured the overall attitude towards personalized pricing (‘It is [acceptable]/[fair]/[reasonable] if an online store charges different prices for consumers based on personal data’). I merged these three items to form one scale on the overall attitude towards personalized pricing; the scale had a high reliability score ($\alpha = 0.93$). I measured participants’ opinions on whether consumers with a higher willingness to pay should pay higher prices with a single item: ‘I find it acceptable to charge people with a higher willingness to pay a higher price’. Finally, I asked some general questions about consumers’ daily internet usage, online purchase frequency in the last six months, and the average amount of money spent on said purchases.

5.5 RESULTS

Before examining the ranking of grounds along the five different dimensions, I analyzed the general attitude of participants regarding personalized pricing. Participants reported a negative attitude towards personalized pricing, with an average score of 2.47 (SD = 1.54). Regarding their opinion on solidarity, whether it is acceptable to charge people with a higher willingness to pay a higher price, participants on average somewhat disagreed with the statement (M = 3.09, SD = 1.65).⁴⁹ Participants who reported a higher income, found it less acceptable to charge higher prices for people with a higher willingness to pay, $r(755) = -.098, p = .008$. On average, in the last six months, participants reported to have made online purchases on a weekly basis, spent about two to three hours online for non-work-related purposes, and spent between €101-300 on online purchases.

The five dimensions across which I collected participant perceptions, resulted in five rankings of twenty-five grounds. For an overview, see Figure 5.1 and Table 5.2.

⁴⁷ OECD 2018b; Malgieri 2022.

⁴⁸ Grewal et al. 2004; Hufnagel et al. 2022.

⁴⁹ The results for this statement were quite polarized, with half of the participants centered around ‘strongly disagree’ and the other half centered around ‘strongly agree’.

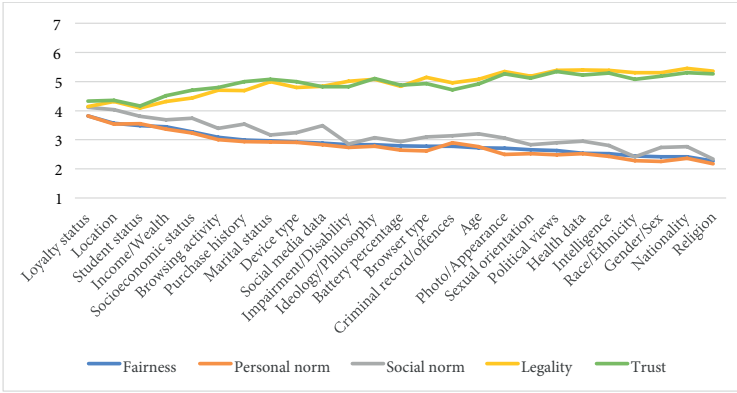


Figure 5.1. Overview of perceptions regarding discrimination grounds (N = 727)

Table 5.2. Overview of perceptions per ground

| Ground | Unfairness | Personal norm | Social norm | Legality | Trust in market |
|---------------------------------|------------|---------------|-------------|----------|-----------------|
| Age | 2.72 | 2.76 | 3.2 | 5.08 | 4.92 |
| Battery percentage | 2.79 | 2.64 | 2.94 | 4.84 | 4.88 |
| Browser type | 2.78 | 2.62 | 3.1 | 5.14 | 4.93 |
| Browsing activity | 3.08 | 3.00 | 3.39 | 4.7 | 4.8 |
| <u>Criminal record/offences</u> | 2.77 | 2.9 | 3.14 | 4.95 | 4.72 |
| Device type | 2.92 | 2.91 | 3.25 | 4.8 | 5.00 |
| <u>Gender/Sex</u> | 2.41 | 2.25 | 2.73 | 5.3 | 5.18 |
| <u>Health data</u> | 2.53 | 2.52 | 2.95 | 5.4 | 5.23 |
| <u>Ideology/Philosophy</u> | 2.83 | 2.78 | 3.07 | 5.08 | 5.11 |
| <u>Impairment/Disability</u> | 2.83 | 2.74 | 2.86 | 5.01 | 4.82 |
| <i>Income/Wealth</i> | 3.45 | 3.36 | 3.69 | 4.32 | 4.51 |
| Intelligence | 2.52 | 2.43 | 2.8 | 5.39 | 5.29 |
| Location | 3.57 | 3.54 | 4.03 | 4.31 | 4.35 |
| Loyalty status | 3.82 | 3.82 | 4.12 | 4.14 | 4.33 |
| <u>Marital status</u> | 2.96 | 2.92 | 3.16 | 5.00 | 5.08 |
| <u>Nationality</u> | 2.41 | 2.36 | 2.76 | 5.45 | 5.30 |
| Photo/appearance | 2.71 | 2.50 | 3.06 | 5.35 | 5.27 |
| <u>Political views</u> | 2.63 | 2.48 | 2.90 | 5.38 | 5.35 |
| Purchase history | 2.99 | 2.94 | 3.54 | 4.69 | 4.99 |
| <u>Race/Ethnicity</u> | 2.44 | 2.28 | 2.42 | 5.30 | 5.07 |
| <u>Religion</u> | 2.27 | 2.17 | 2.33 | 5.36 | 5.26 |
| <u>Sexual orientation</u> | 2.66 | 2.52 | 2.83 | 5.19 | 5.12 |
| Social media data | 2.88 | 2.83 | 3.48 | 4.83 | 4.82 |
| <i>Socioeconomic status</i> | 3.27 | 3.23 | 3.74 | 4.44 | 4.70 |
| Student status | 3.49 | 3.55 | 3.80 | 4.09 | 4.16 |

Note: The underlined grounds are legally prohibited either in the European legal framework or in the Dutch constitution. The grounds in *italics* are legally prohibited in some other national constitutions in the EU.

First, fairness perceptions of the discrimination grounds revealed that participants ranked *all* grounds as unfair (i.e., all under 4 on the 7-point scale). Out of all grounds, the use of loyalty status for personalized pricing was deemed the least unfair ($M = 3.82$, $SD = 1.70$), with location ($M = 3.57$, $SD = 1.69$) and student status ($M = 3.49$, $SD = 1.77$) in second and third place, respectively. Religion was deemed the most unfair ground ($M = 2.27$, $SD = 1.50$), with nationality ($M = 2.41$, $SD = 1.60$) and gender ($M = 2.41$, $SD = 1.60$) in shared second place and ethnicity ($M = 2.44$, $SD = 1.70$) in third place. For the complete ranking, see Figure 5.2.

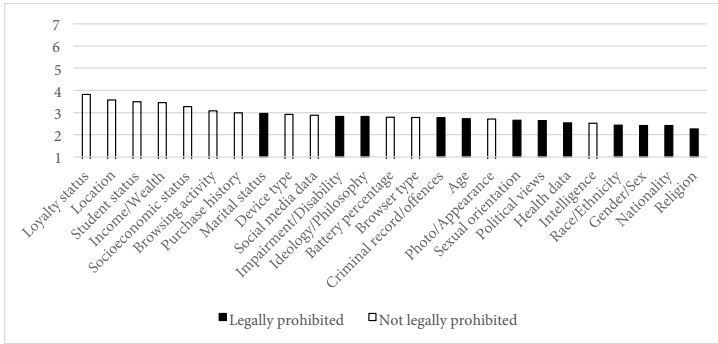


Figure 5.2. Perceived fairness of discrimination grounds (N = 727)

Second, when asked about the alignment of the discrimination grounds with personal norms, a response similar to perceived fairness was observed. That is, none of the grounds aligned with personal norms (i.e., all under 4 on the 7-point scale). The grounds that aligned the least with participants' personal norms were religion (M = 2.17, SD = 1.55), gender (M = 2.25, SD = 1.59), and ethnicity (M = 2.28, SD = 1.57). Loyalty status (M = 3.82, SD = 1.74), student status (M = 3.55, SD = 1.74) and location (M = 3.54, SD = 1.65) reportedly misaligned the least with personal norms. For the complete ranking, see Figure 5.3.

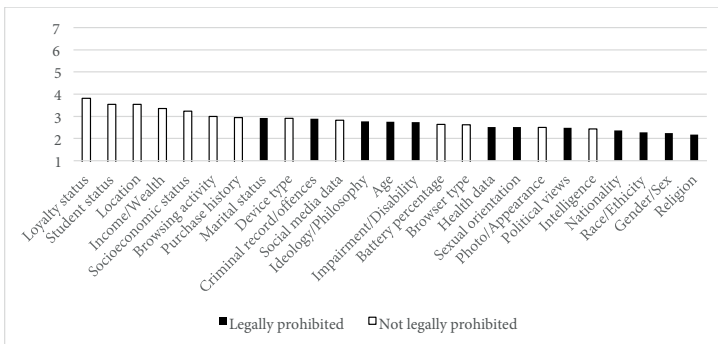


Figure 5.3. Perceived alignment with personal norms of discrimination grounds (N = 727)

Third, the grounds were also ranked in terms of the (perceived) alignment with existing social norms. The grounds that were perceived to align the least with societal norms, were religion ($M = 2.33$, $SD = 1.45$), ethnicity ($M = 2.42$, $SD = 1.53$), and gender ($M = 2.73$, $SD = 1.78$). Loyalty status ($M = 4.12$, $SD = 1.74$), location ($M = 4.03$, $SD = 1.60$), and student status ($M = 3.8$, $SD = 1.82$) were perceived to align more with societal norms, but still scored under 4 on the 7-point scale; see Figure 5.4 for the complete ranking. Interestingly, we observed a small positive difference with personal norms across the board, $t(579) = -7.47$, $p < .001$, $d = .31$. The scores for social norms were consistently higher for each ground than for personal norms. The grounds were perceived to align less with personal norms than with social norms. In other words, for all grounds participants assumed higher acceptance in society than their own acceptance.

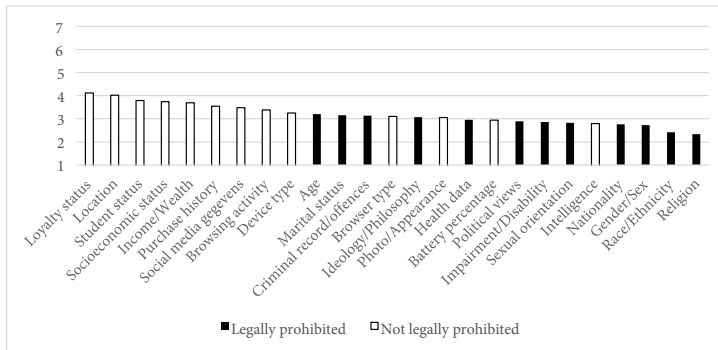


Figure 5.4. Perceived alignment with social norms of discrimination grounds ($N = 727$)

Fourth, I asked participants to what extent each ground should be legally prohibited. The three grounds that were deemed the most illegitimate were nationality ($M = 5.45$, $SD = 1.60$), health data ($M = 5.4$, $SD = 1.59$), and intelligence ($M = 5.39$, $SD = 1.72$). Nationality and health data are legally prohibited, while intelligence is not. Student status ($M = 4.09$, $SD = 1.89$), loyalty status ($M = 4.14$, $SD = 1.83$), and location data ($M = 4.31$, $SD = 1.70$) were deemed the least illegitimate, although they still were ranked over 4 on the 7-point scale. These grounds are all three not legally prohibited. Figure 5.5 shows the complete ranking.

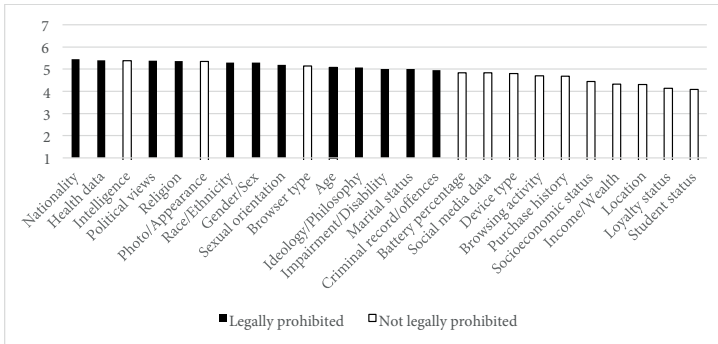


Figure 5.5. Perceived illegitimacy of discrimination grounds (N = 727)

Fifth and last, participants had to indicate to what extent the use of a certain ground would diminish their trust in the market. The use of political views ($M = 5.35$, $SD = 1.54$), nationality ($M = 5.3$, $SD = 1.69$), and intelligence ($M = 5.29$, $SD = 1.75$) were the top three grounds that would lead to a loss of trust. Student status ($M = 4.16$, $SD = 1.81$), loyalty status ($M = 4.33$, $SD = 1.73$), and location ($M = 4.35$, $SD = 1.58$) came out as the three grounds that would lead to less loss in trust, although still all grounds scored over 4 on the 7-point scale, hence all leading to less trust in markets. For the complete ranking, see Figure 5.6.

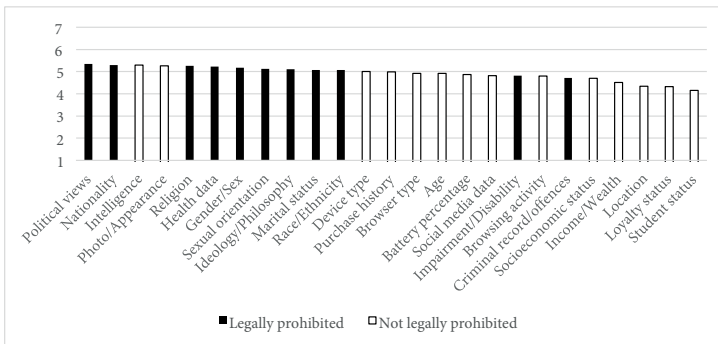


Figure 5.6. Reported loss of trust in market in case of use of discrimination grounds (N = 727)

I compared the legally prohibited grounds to the grounds that are not (yet) legally prohibited. I created two categories, bundling all perceptions for each of the five dimensions and conducted a paired samples t-test to compare the average scores of the two categories. For fairness, personal norms, and social norms, the mean value of all legally prohibited

grounds was significantly higher than that of the non-prohibited grounds. Legally prohibited grounds were perceived as more unfair than non-legal grounds ($M = -.43$, $SD = 1.09$), less in alignment with personal norms ($M = -.45$, $SD = 1.10$) and social norms ($M = -.60$, $SD = 1.16$). Additionally, overall, legal grounds were deemed more illegitimate (i.e., less permissible) than non-prohibited grounds ($M = .46$, $SD = 1.21$) and were reported to lead to a higher loss in trust ($M = .32$, $SD = 1.16$).

In addition to categorizing grounds based on their current legality, I also distinguished between immutable and (technically) mutable grounds. I selected three unambiguous grounds for each category. I considered ethnicity, sexual orientation, and intelligence to be immutable, and browser type, battery percentage, and device type to be mutable. As for the immutable grounds, ethnicity and sexual orientation are legally protected discrimination grounds, whereas intelligence is not. I found significant differences ($p < .001$) between the groups: price discrimination on the basis of immutable grounds was considered more unfair than on the basis of mutable grounds ($M = 2.53$ vs. $M = 2.82$), less aligned with personal norms ($M = 2.40$ vs. $M = 2.72$), and less aligned with social norms ($M = 2.68$ vs. $M = 3.10$). Moreover, immutable grounds were deemed to be more illegitimate than mutable grounds ($M = 5.30$ vs. $M = 4.93$) and would diminish participants' trust in the market more ($M = 5.16$ vs. $M = 4.93$).

5.6 DISCUSSION

The aim of this research was to provide a comprehensive overview of consumer perceptions regarding grounds used for personalized pricing, and to examine whether there is a gap between perceptions of grounds that are prohibited and not prohibited. Where previous research focused on general (un)fairness perceptions surrounding personalized pricing⁵⁰ or zoomed in on specific non-legally prohibited grounds,⁵¹ the current study set out to map an overview of perceptions of various grounds across several dimensions. By combining both types of grounds (legally and not legally prohibited), it is possible to assess the extent to which current legislation aligns with societal perceptions and whether grounds that are not (yet) legally prohibited, evoke similar responses as legally prohibited grounds. The findings provide valuable input for the discussion on the extent to which current legislation offers – or should offer – appropriate safeguards against the challenges associated with personalized pricing.

There is quite some overlap between consumer perceptions of unfairness ('legitimacy') and illegality. The grounds that participants in our survey consider most unfair are also the grounds that are protection is already provided for in law, more specifically anti-discrimination and data protection law. Moreover, from the grounds that are not prohibited,

⁵⁰ Turow, Feldman & Meltzer 2005; Poort & Zuiderveen Borgesius 2019.

⁵¹ Priester, Robbert & Roth 2020; Hufnagel, Schwaiger & Meritz 2022.

intelligence and physical appearance scored high on unfairness and were reported to align the least with personal and social norms. Personalizing prices on browser type and battery percentage also scored relatively high in terms of unfairness and misalignment with personal and social norms.

It can be observed that participants' perception of the current social norms is that grounds are structurally less misaligned with social norms than their personal norm. Apparently, price discrimination is perceived as more socially acceptable than personally acceptable. This suggests that participants consider themselves more critical than society, or society less critical than themselves. Perceptions of (social) norm misalignment could have far-reaching negative consequences for companies and the digital market. For the latter, I included the dimension 'trust in market' to assess the extent to which the use of a ground would lead to (self-reported) loss of trust among participants. I found that the use of grounds that were deemed the least aligned with social norms and the most illegitimate, were accompanied with a higher self-reported loss of trust in the digital market. 'Newer' grounds that scored high on norm misalignment, such as intelligence and appearance, showed a similar correlation.

5.6.1. Contributions to literature

The findings are consistent with previous findings and observations that personalized pricing is generally viewed by the public as unfair, illegal, and unethical.⁵² The differences that I found between grounds are also in line with previous studies that focused on specific non-legally prohibited grounds. For instance, in line with Hufnagel et al. (2022), I found that personalized pricing based on location is deemed as less unfair than device type.⁵³ Furthermore, in line with Priester et al. (2021), I also found that location is deemed as less unfair than purchase history.⁵⁴ The grounds that I investigated all rank under the second half of the seven-point scale of fairness, personal norms and social norms inasmuch that no ground is considered fair for personalized pricing – only less *unfair*. A similar trend is observed for the perceived illegality and the effect that the use of the discrimination grounds has for consumers' trust in markets.

5.6.2. Practical implications

For companies currently engaging or looking to engage in personalized pricing, this research provides an overview of how personalized pricing grounds are perceived by consumers. Not to encourage them to focus their personalized pricing strategies on the grounds that are not yet legally prohibited or deemed as less unfair, but rather to raise awareness that data are heavily intertwined and could very well result in legally prohibited discrimination.

⁵² Turow, Feldman & Meltzer 2005; Poort & Zuiderveen Borgesius 2019.

⁵³ Hufnagel, Schwaiger & Meritz 2022.

⁵⁴ Priester, Robbert & Roth 2020.

Take loyalty status as an example, as the findings showed that this was deemed one of the least unfair grounds and the least misaligned with current social norms. In practice, loyal customers are often offered a discount. To become a loyal member, however, often requires purchasing power, which is closely associated with income and socioeconomic status. In addition, signing up for a loyalty program often entails giving up personal data, some of which might be legally protected. Therefore, attention is warranted when engaging in personalized pricing. Companies seem to be aware of this.⁵⁵

5.6.3. *Policy implications*

From a policy perspective, it is interesting to zoom in on the grounds that are not yet legally prohibited, but that were perceived as unfair and in violation of personal and social norms: intelligence, appearance, battery percentage, and browser type. One could argue that these grounds could potentially be included in legislation as prohibited grounds – especially intelligence and appearance.

There are at least two arguments for this. One is the viewpoint that the law is a codification of social norms.⁵⁶ The law is not a static system, but changes over time, reflecting changes in norms and perceptions in society. If social norms and perceptions change, in this case because new technologies enable new grounds for (price) discrimination, this can be sufficient reason to change the legislation accordingly. Legally prohibiting discrimination grounds that are considered unfair by people would mean a further alignment between the legal system and social norms and perceptions. Basically, this is a fairness argument, which applies the strongest to inherently immutable personal characteristics.

A second argument to consider changing the law has a more economic perspective: a lack of protection of grounds for price discrimination that are considered unfair would also reportedly lead to a relatively high loss of trust in the market.⁵⁷ Hence, apart from the unfairness at an individual level, there is a larger economic effect that may provide an argument for the legislator to step in and offer protection through regulation.

When reconsidering the grounds that need protection, the question is which grounds to include. The current lack of harmonization of grounds in EU Member States shows that there is not a shared understanding of fairness, or at least no agreement on which grounds require protection.⁵⁸ Although the reported loss of trust and unfairness perceptions associated with newer grounds could form a justification to protect these grounds – or at least reassess the current legal framework – the rapid pace at which the technology is developing makes it difficult to predict to what extent legal regulation could keep up with these developments. New grounds could emerge that are also perceived as unfair, but companies could

⁵⁵ See Chapter 2 and Heidary et al. 2022.

⁵⁶ Basu 1997.

⁵⁷ Cross 2004.

⁵⁸ Custers 2023.

also find ways to circumvent prohibited grounds by using proxies or engaging in indirect discrimination, both of which are proven to be difficult to detect and enforce.⁵⁹ Therefore, some scholars have argued that adding several new prohibited discrimination grounds to the legal framework does not seem to be the way forward.⁶⁰

Out of all the non-legally prohibited grounds, pricing based on intelligence and appearance received the most negative reactions. Intelligence and appearance are both (technically) immutable, meaning that they are unchangeable, or at least not changeable without significant effort. Discrimination based on intelligence or on appearance is not legally prohibited⁶¹ and happens on a daily basis.⁶² Photos are not only considered biometric data,⁶³ but readily reveal all kinds of physical attributes, such as race, religion, health, and ethnicity. While intelligence is for a large part innate, environmental factors such as a high socioeconomic status can contribute to developing intellectual skills, and the other way around: more intelligent individuals tend to achieve higher levels of education, occupational status, income, and even better health outcomes.⁶⁴ However, since data are so heavily intertwined, it would be difficult to substantiate why exactly these two grounds would need to be added to the existing legal framework.⁶⁵

Alternatively, instead of providing justification for adding new prohibited grounds, our findings provide insight in the degree of harm that might be inflicted when specific grounds are used for price personalization. In our findings, socioeconomic status comes forward as a relatively acceptable – or less unacceptable – ground to base prices on. Socioeconomic status and its supposed protection are a point of discussion among EU Member States.⁶⁶ Socioeconomic status is not (yet) legally protected in Dutch constitutional law, partly because there is still no consensus regarding whether it is an inherent or immutable characteristic.⁶⁷ In the context of personalized pricing, the effect of this pricing strategy on consumer welfare is ambiguous.⁶⁸ In some cases, it could be beneficial to distinguish between consumers and their socioeconomic position, as it might allow certain consumers access to a product or service that they – because of their socioeconomic position – would not have been able to afford otherwise. However, the vulnerabilities that come with being part of a certain socioeconomic class (e.g., low level of digital literacy), could very well be exploited by companies.⁶⁹

⁵⁹ Zuiderveen Borgesius 2018.

⁶⁰ Solove 2023; Helberger et al. 2024, p. 59.

⁶¹ Apart from Belgium, France and Serbia, where discrimination on the basis of physical appearance is prohibited.

⁶² Tannock 2008; Liu 2017.

⁶³ Recital 51 GDPR.

⁶⁴ Deckers et al. 2018; Bosma et al. 2007.

⁶⁵ Solove 2023.

⁶⁶ Ganty & Benito Sanchez 2021.

⁶⁷ The ground is currently protected in 11 Member States. See also *Handelingen I 2019/2020*, nr. 86, item 24.

⁶⁸ Elegido 2011.

⁶⁹ Strycharz & Duivenvoorde 2021.

Furthermore, socioeconomic status and social class are heavily intertwined with sensitive data such as political preferences and ethnicity.⁷⁰ In line with Solove (2023), I propose that case-by-case analyses are needed to further assess the harm that might flow from the use of certain grounds. If such analyses would reveal the need to include new discrimination grounds in legislation, this does not necessarily need to be done in formal legislation, such as international treaties, national constitutions, or equal treatment acts. The open-endedness of the listings of discrimination grounds (i.e., non-exhaustive listings that use phrases like ‘or other characteristics’) in many legal instruments allows judges and courts to qualify new grounds as illegal in particular contexts.

The focus is often on expanding the lists of discrimination grounds in legislation, but theoretically existing grounds could also become outdated. However, based on the current findings that all grounds are considered unfair, albeit in varying degrees, I conclude that there is no argument to remove some discrimination grounds from existing legislation.

5.6.4. Limitations and suggestions for future research

This research aimed to map a comprehensive overview of consumer perceptions and social norms surrounding grounds for personalized pricing. However, social norms can change over time and differ between cultures and countries.⁷¹ Since I conducted the survey among Dutch consumers, I recommend that this research is replicated in other (European) countries and updated as new grounds emerge, to assess to what extent perceptions are universal across countries and time. Given that the national constitutions are also not fully harmonized in terms of their implementation of protection against discrimination, it is imperative to assess what the underlying social norms are for other countries and to what extent they align with the existing legal frameworks, to advance the regulatory debate.

We should also consider the *complexity* of the profile that the online price discrimination practice is based on. As we move more towards personalized pricing and individual profiles, consumer profiles require more variables to be tailored to smaller groups or even individual consumers.⁷² Drawing inspiration from the concept of intersectionality, the notion that individual characteristics intersect with each other and overlap to create unique dynamics,⁷³ we can also observe that different forms of inequality (and vulnerability) might combine in different ways. Our acceptance of grounds used for price discrimination might not be binary (some grounds are acceptable, and some are not), but rather continuous (it is acceptable to discriminate on one ground, but not multiple grounds, or some grounds are acceptable to a certain degree) or even more complex (certain combinations of grounds are unacceptable, even if the separate grounds are considered acceptable).

⁷⁰ Gandy 2009.

⁷¹ Garbarino & Maxwell 2010.

⁷² Townley, Morrison & Yeung 2017, p. 690.

⁷³ First coined by Professor Kimberlé Crenshaw in 1989. See Crenshaw 1989.

I follow Solove's (2023) argumentation, that the ground itself is not inherently bad or good; the use and risk of harm by using it in such a manner is what matters.⁷⁴ Prohibiting the use of sensitive data, such as religion, gender or sexual orientation *a priori*, might stifle the creation of market segments of historically underrepresented or marginalized communities, such as advertisements containing social justice issues, targeted to certain racial groups.⁷⁵ Conversely, even if the use of certain data *seems* justified from a cost-perspective or the perspective of facilitating market entry for marginalized groups, we might still deem them undesirable (Textbox 6). Further research on how to further shape such a case-by-case analysis is warranted.

Textbox 6: Detroit Music Festival

How far can you go in promoting access for marginalized groups? Music festival 'AfroFuture' in Detroit charged white festivalgoers twice as much as people of color: early-bird tickets cost \$10 for people of color and \$ 20 for white consumers. General admission would be \$20 and \$40 respectively. The organizers of the festival explicitly stated that they aimed to promote equity over equality, wanting to ensure that marginalized black and brown communities could access events in their city.⁷⁶

The race-based pricing practice led to a national firestorm, with the public denouncing the festival as 'racist'.⁷⁷ Some of the artists in the festival's line-up refused to perform.⁷⁸ Eventbrite, the online platform that the tickets were sold on, notified the organizers that the ticket prices were a violation of anti-discrimination law and they should alter their prices accordingly. The organizers ultimately reversed course (partly because they 'received threats from white supremacists', as they stated) and changed the ticket prices to \$10 (early-bird) and \$20 for all attendees, with 'suggested donation' for white attendees.⁷⁹

Furthermore, in the information presented to participants, I provided participants with a definition of personalized pricing ('charging different prices to different consumers based on their data, such as personal characteristics or online behavior') and that this could result in a higher or lower price for certain (groups of) consumers. While I purposefully opted for this formulation as to not induce specific interpretations, it does leave room for consumers to fill in for themselves whether the grounds that they were shown would entail a higher or lower price. This neutral formulation could have resulted in different interpretations

⁷⁴ Solove 2023.

⁷⁵ Leipzig et al. 2021.

⁷⁶ Sansone 2019.

⁷⁷ Sansone 2019; Vera & Silverman 2019.

⁷⁸ Khaleel 2019.

⁷⁹ Afrofuture Youth 2019.

for consumers. Hence, I propose that future research includes more specific scenarios as well, such as specifically mentioning higher or lower prices, to investigate whether and to what extent they influence (un)fairness perceptions. Not only are lower prices perceived as fairer, but they are also expected to be a more realistic future manifestation of personalized pricing.⁸⁰

5.7 CONCLUSION

This chapter investigated consumer fairness perceptions regarding segmentation bases and the extent to which these perceptions line up with grounds currently prohibited in law (RQ4: What are consumers' fairness perceptions of segmentation bases and to what extent do they line up with grounds currently prohibited in law?). In the context of personalized pricing, there is support for the grounds that are currently prohibited and protected through anti-discrimination and data protection law. In other words, there is no substantial gap between law in the books and law in action, i.e., the grounds that people find unfair or unacceptable. The overall acceptance of discrimination on any of these grounds is low; it is therefore not a matter of what participants find *fair*, but what they find *less unfair*. Consumers' fairness perceptions of segmentation bases align for the most part with the grounds currently prohibited in law, but there are some legally permitted grounds (e.g., intelligence and appearance) that evoke negative reactions as strong as legally protected characteristics. Hence, consumer perceptions are not fully aligned with the grounds currently prohibited in law.

This raises the question whether new grounds should be included in future legislation. Although extended protection for these new discrimination grounds is worth considering (both on the basis of fairness arguments and market trust arguments), expanding the lists of discrimination grounds in legislation may not be the way to keep up with the rate in which 'new' data can be used to personalize prices. An ever-expanding list of discrimination grounds may water down the protection it intends to offer, as it may be hard to enforce and easy to circumvent. Furthermore, the acceptability of many grounds may be dependent on the context. Hence, before changing legislation, it is important to further investigate specific scenarios and context dependencies. This will reveal where further legal protection is needed. This legal protection can be offered by including new discrimination grounds in legislation, but alternatively it is also possible to focus the regulation on the potential risks and harms caused by these practices.

In Chapter 6, I continue the discussion on the extent to which legal regulation can keep up with online price discrimination. Here, alternative modes for regulation are explored.

⁸⁰ Heidary et al. 2022.