

What to do about discriminatory pricing?

**Algorithmic Bias, Consumer Outcomes
and the Future of Regulation**



Tilly Cook
David Mendes da Costa
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Introduction

In March 2022, [we published research](#) that found that people of colour spend on average £250 more than white people on car insurance. We used a combination of research methods to get under the hood of car insurance and build a robust evidence base. Our results are clear, but there isn't a simple solution to this complex problem.

Many factors are likely to drive these unequal outcomes: from individualised pricing in insurance to algorithmic bias and structural racism. However, the multifaceted nature of the issue shouldn't prevent action from being taken. Instead, insurers must recognise that - in line with the Equality Act 2010 and, as we highlight, the FCA's new Consumer Duty- they have a responsibility to explain and justify any unequal outcomes or risk illegal indirect discrimination. Since publishing our report we have been working closely with stakeholders from the Financial Conduct Authority (FCA) and the Centre for Data Ethics and Innovation (CDEI) to develop a practical solution to this complex problem.

For insurers to take serious steps towards providing an adequate explanation of unequal outcomes, they must go beyond platitudes, assertions or hypotheses and build a robust data driven understanding of the problem. This is no mean feat. It will require grappling with challenging questions around data collection and protection, algorithmic decision making and fair value for consumers. However, this is work that all firms will need to undertake in line with the FCA's new [Consumer Duty](#). The FCA's guidance outlines both the requirement to monitor outcomes for "customers with characteristics of vulnerability or customers who share protected characteristics" and provides innovative suggestions for collecting the data firms might need to do so.

The Consumer Duty does not replace the requirements of the Equality Act 2010 but rather strengthens firms' responsibilities towards customers with protected characteristics. **Whether we continue to find evidence of discriminatory pricing will depend on the success or failure of how the Consumer Duty is implemented.**

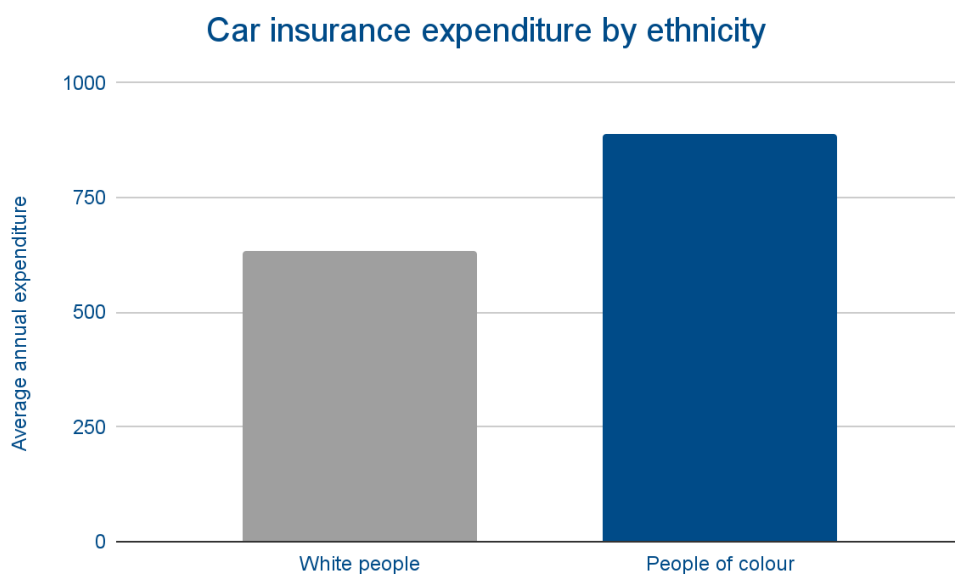
Our policy proposals below outline a framework that industry and regulators should use to address discriminatory pricing and an outline of how this approach interacts with the requirements of the Consumer Duty. There are different approaches firms could take to monitoring for discriminatory outcomes. Firms will first need to decide between collecting ethnicity data from customers or using proxies (like postcodes) to understand consumer outcomes. They will also need to choose whether to ensure algorithmic models are fully explainable or to concentrate on carefully measuring outcomes like

claims rates and costs to serve and checking they explain any differences in premiums charged. It is vital that, whichever specific mechanisms are used, we secure a market in which people of colour are not charged more for their insurance.

Regardless of the process used we would expect industry and regulators to come away with plans for increased corporate accountability, changes to governance and an outline of how they might regulate algorithmic bias in the future. While our work has focused on the insurance market, we believe that monitoring for the risk of algorithmic bias, and tackling it, should be a priority across markets. The insurance market provides regulators with an important first testing ground for how to get market fairness right in our digital age.

The problem

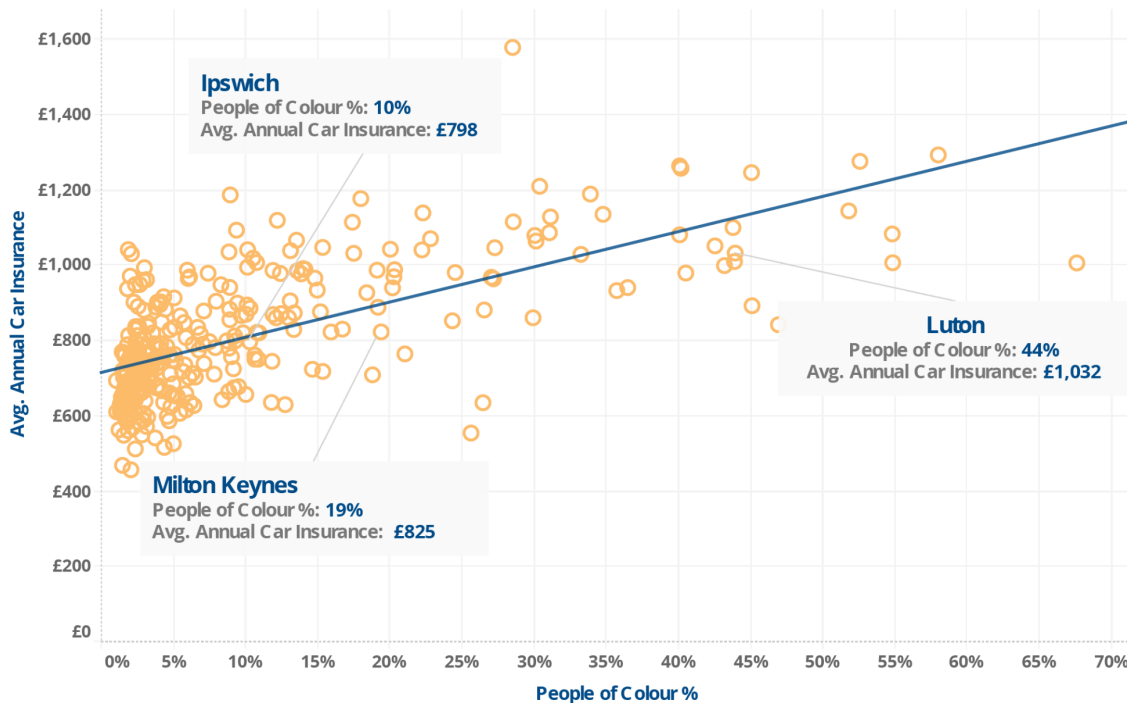
To find out whether people of colour pay more for insurance, we looked at how much people we help with debt report spending on their car insurance.¹



Results are based on a sample size of 25,140 people coming to Citizens Advice for debt advice in 2021.

¹ At Citizens Advice when people come to us for help with debt we capture data on their income and expenditure. We used this data to look at how much people report spending on car insurance.

We found that people of colour report spending on average £250 more than white people for car insurance. When we conducted regression analysis we found that these results weren't driven by age, gender or income².



Results are based on a sample size of 25,140 people coming to Citizens Advice for debt advice in 2021.

To dig further into these results, we carried out an in-depth mystery shopping exercise in a further 8 postcodes across England. We found a significant price difference between customers living in different areas. In all the areas we tested with a high proportion of Black and South Asian people in the population, customers were quoted at least £280 more for car insurance, compared to areas where the population is largely white.

We know that insurers use hundreds of pieces of information to set their prices, so we also tested the impact of common geographic risk factors including crime rate, population density and indices of deprivation and found that these could not account for the difference in price.

² These findings are based on detailed analysis of our debt client data which allowed us to look at annual car insurance expenditure by ethnicity in 18,000 postcodes across England and Wales.

We believe that these pricing differences are being driven by a combination of factors including:

- increasingly individualised pricing in insurance
- the use of opaque and complex algorithms
- data that can reflect (and amplify) structural racism and inequality

Taken together, the last two factors represent a form of algorithmic bias that may well be at play across a range of consumer markets.

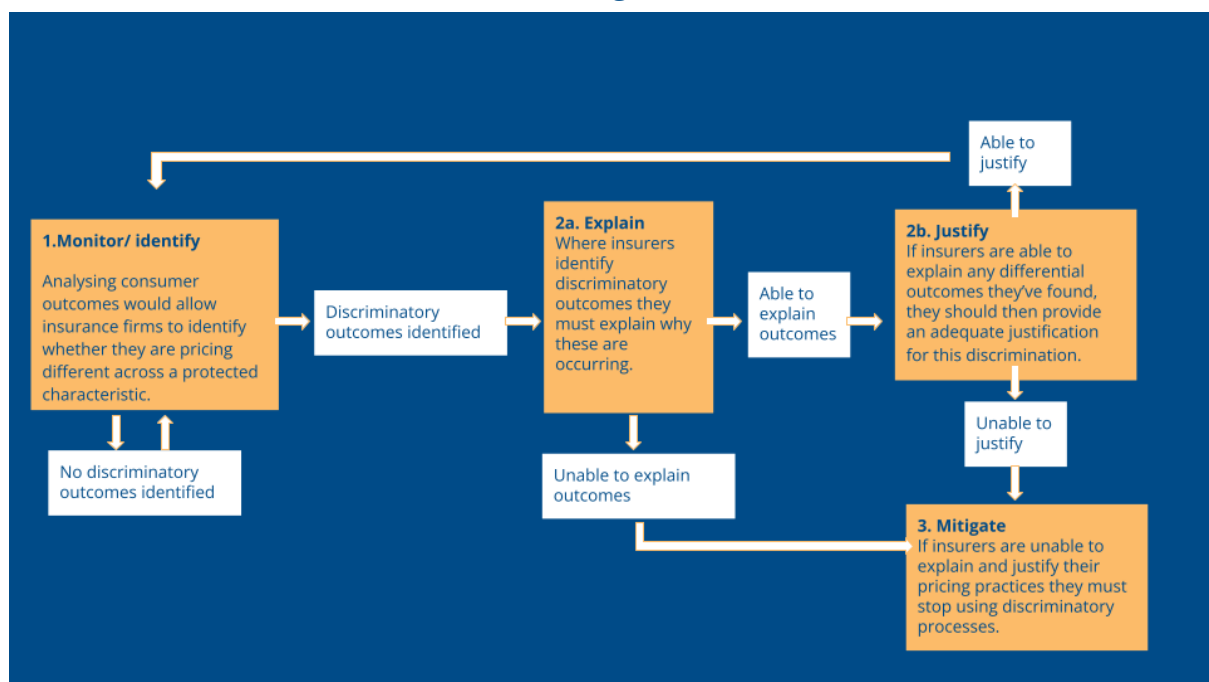
The Equality Act 2010

The difference in price paid by people of colour compared to the price paid by white people may be an example of “indirect discrimination”. Section 19 of the Equality Act (2010), defines indirect discrimination as taking place when a policy is applied in the same way for everybody but results in worse outcomes for a group of people with protected characteristics. Indirect discrimination is at play if said policy cannot be proven to be “a proportionate means of achieving a legitimate aim”. Based on our findings, we believe the insurance industry now has a responsibility to empirically demonstrate that their pricing policies constitute a “proportionate means” or they must take steps to mitigate these discriminatory outcomes.

A framework for addressing the problem

Over 2022, following the publication of our report, we have held discussions and roundtables with representatives from industry and regulators to better understand how they can take action on discriminatory pricing. The emerging consensus from these discussions is that both firms and regulators have clear roles in solving this problem and therefore must work together towards addressing it.

Our framework is summarised in the diagram below. It consists of three main blocks: (1) Firms must **monitor** for discriminatory outcomes. (2) Where discriminatory outcomes are identified there is a need to understand what is driving them (**explanation**) and then to test if that explanation includes a clear basis for that discrimination (**justification**). (3) If an explanation isn't available or if it doesn't justify the discrimination then firms must move to **mitigate** the discrimination.



In this chapter we set out each of the steps in this framework in more detail, including some of the challenges and insights raised throughout our stakeholder engagement. We also highlight how each step links with the expectations of the FCA's new Consumer Duty.

1. Firms must monitor consumer outcomes for groups with protected characteristics.

Monitoring is an essential step in any framework to address discriminatory outcomes. In insurance markets, monitoring for potentially discriminatory outcomes is particularly important given the proven risk of algorithmic bias. This must be an essential component of the governance of firms that use algorithmic decision making processes.

In the case of discriminatory pricing, careful monitoring would allow firms to develop a clear understanding of whether their pricing models are leading to potentially biased outcomes. If this analysis does not identify differential outcomes for groups with protected characteristics, then further monitoring is all that is required. This view is reflected in the Consumer Duty.

Consumer Duty Guidance:

11.11 "The Duty is intended to improve outcomes for all customers, and we would expect firm monitoring to identify where distinct groups of customers, such as customers with characteristics of vulnerability or customers who share protected characteristics (as defined by the Equality Act 2010 or equivalent legislation), get worse outcomes than other customers."

A significant issue raised in our stakeholder engagement has been that firms often do not hold information on protected characteristics such as ethnicity. Several problems were highlighted around collecting this information, including reluctance of customers to share data if they thought it might impact their premiums, reputational concerns around running such a data collection exercise and broader concerns around data protection law. As a result, much discussion turned to alternative approaches including using proxy data (such as postcodes).

Using proxy data to understand consumer outcomes is particularly relevant in the case of car insurance which is an industry based on the use of extensive and complex personal data sets. Indeed, where discrimination may be occurring indirectly through,

for example, the influence of postcodes on pricing algorithms, testing outcomes against this proxy data could be highly relevant and revealing. Proxy data is also likely to work well when looking at a single metric for consumer outcomes - in this case price of an insurance policy.

The Consumer Duty guidance outlines a number of approaches to monitoring outcomes for groups with protected characteristics. We believe that using proxy data could provide one initial method for understanding the prevalence of discriminatory pricing:

Consumer Duty Guidance:

11.42 "Firms might be able to use proxy data to infer outcomes experienced by different groups of customers. For example, it may be possible for firms to use customer name and post code as a proxy for ethnicity in certain circumstances. Firms would need to carefully manage any risks and be mindful of their data protection obligations when using proxy data."

It is important to recognise that proxy data has limitations both in terms of data ethics and accuracy - carrying with it the risk of potentially spurious results. An investigation based on a proxied understanding of consumer outcomes can be a valuable first step towards understanding the experiences of different groups of consumers, but firms should continue to explore approaches which allow for a more refined monitoring of protected characteristics. The CDEI is exploring approaches to help companies access demographic data for bias monitoring, including via data intermediaries and proxy methods.³ New solutions like these could help to address the barriers companies face when looking to collect demographic data themselves, while ensuring consumers have confidence that their data is being protected responsibly. Even though an ecosystem for this kind of data solution does not currently exist, there are actions that firms can start taking now.

When the new Consumer Duty comes into effect in July of this year firms will need to undertake monitoring themselves to ensure they are operating in compliance with the duty and thus the Equality Act 2010. This approach gives leeway for firms to develop their own approach to monitoring which could have the benefit of producing agile and efficient form of monitoring. However, the risk with a firm led approach is that monitoring practices across the market are inconsistent and offer less assurance to

³ [Centre for Data Ethics and Innovation, 'Enabling responsible access to demographic data for algorithmic bias detection', 2022.](#)

consumers. Regulators have a role not only in supervising firms to ensure they carry out monitoring, but working with industry to identify best practice to ensure consistent outcomes across the sector.

Given existing evidence of discriminatory pricing in the car insurance market, action cannot wait until July. There are two steps the FCA should consider taking in the interim. The first is to work with firms through a Tech Sprint to collectively develop approaches to monitoring for discriminatory outcomes. The second is for the regulator to conduct its own initial monitoring of discriminatory outcomes in insurance (using local area proxies, like postcodes) in order to have an accepted view of the extent of the issue with which to measure progress. By doing this the FCA would send a clear signal to firms of its expectations around the Consumer Duty and protected characteristics.

2. Firms must be able to provide an adequate explanation and justification for any unequal outcomes they have found.

Where there are differential outcomes in relation to protected characteristics, the Equality Act is clear that the burden of responsibility lies with the firm to explain and justify any differential outcomes that have been identified. The Consumer Duty also outlines the responsibilities firms have for explaining their decision making practices if and when they identify unequal outcomes.

Consumer Duty Guidance

11.27 "Firms should also maintain records of the issues that they identify, and the action that they take to address those issues. Firms need to be able to explain how they reached a decision on the right intervention, and to demonstrate how that intervention has delivered better consumer outcomes (and, if not, what they have done further to address the issue)."

In the context of AI or machine learning, explanations can be more complex if the algorithm itself is not 'explainable'. Either firms must be able to explain the decisions reached by their algorithms, or they must be able to critically assess the outcomes of these decisions, to determine if there is a reasonable justification for any differential or apparently discriminatory outcomes.

This would need to go beyond suggesting plausible hypotheses for what could be driving different outcomes. In discussions, stakeholders have highlighted several possible drivers of differential outcomes in car insurance including local crime rates,

prevalence of on-street parking (which could drive higher risk and so a higher claims rate) and proximity to the nearest mechanics (which could drive higher claims costs). We have yet to see, however, a statistical analysis of whether these factors do *in fact* explain the differential outcomes. Such an analysis is not outside the competence of insurers, indeed the skills needed to analyse the drivers of risk and cost are central to their business model. What may be lacking is the willingness to take that work forward. We hope that the Consumer Duty will provide greater incentive to carry this work out - indeed, this is how its success should be judged.

We then come to the question of what constitutes an adequate explanation or justification. The courts can provide one route to testing this, but sectoral regulators, with technical understandings of the specific markets they supervise, can engage with these issues more efficiently.

The government's most recent paper on [regulating artificial intelligence](#) articulates a clear vision for the role of sectoral regulators. In particular, it outlines that regulators will be asked "to focus on applications of AI that result in real, identifiable [and] unacceptable levels of risk". We believe that discriminatory pricing in insurance falls within this category of concerns. The report goes on to say that "regulators will be tasked with deciding what 'fairness' or 'transparency' means for AI development or use in the context of their sector". It is natural for regulators to take on this role of arbiter given their independence and expertise, and the need for consistent rulings on what constitutes an adequate justification for differential outcomes. Firms must be responsible for justifying their consumer outcomes, but those justifications should relate to a framework which is established by regulators.

3. If firms are unable to explain and justify their pricing practices, they must take action to ensure their processes don't discriminate.

Finally, it is essential that if discriminatory outcomes are identified and cannot be justified they must be mitigated. In the context of discriminatory pricing in insurance, bias mitigation techniques could include making adjustments to model training data, operation, or outputs, as well as other non-statistical interventions.

The best approach depends strongly on the use case and context. In choosing which interventions are most appropriate, firms should carefully consider the wider policy, operational and legal context.

Consumer Duty Guidance

11.8 *“The action that firms should take when they identify problems will vary depending on a range of factors. Potential interventions could include:*

- adapting, amending or discontinuing a product or service*
- adapting product or service design, fees or charges*
- making appropriate changes to the firm’s operations*
- updating customer support processes or distribution channels*
- modifying communications to make them more easily comprehensible*
- providing redress where customers have suffered harm (where appropriate)”*

Where firms find there are discriminatory outcomes occurring, it is essential that they work closely with their regulator in order to consider what action is appropriate. At the most basic level this means making the regulator aware that these outcomes are occurring.

We are aware that there may be reluctance from some firms to come forward to the regulator where they have found discriminatory outcomes. Several stakeholders highlighted concerns that there could be a ‘first-mover’ disadvantage in taking steps to address this issue. Until specific guidance is issued by the regulator, there would be considerable uncertainty for firms around what the consequences would be of raising issues to the regulator around discriminatory pricing. Despite this, there is a need for firms and regulators to look at ways to identify and address discriminatory pricing now.

This is essentially a regulatory barrier to firms taking innovative action on a new problem. We think that the tools developed by the FCA to address similar issues around innovation (including Tech Sprints and Sandboxes) could have a role here in creating a safe space for firms and the regulator to collaborate openly to solve this important problem.

Our Expectations

Our expectations for consumers

People of colour should not be paying more than white people for car insurance. All consumers should be able to expect a fair price across markets. This is especially important at a time when household budgets are being squeezed by the cost of living crisis. [Recent research](#) has found that people of colour are three times as likely as white people to have cancelled car insurance due to the cost of living.

Consumer Duty Guidance

11.35 *"We want consumers with characteristics of vulnerability to experience outcomes as good as those for other consumers, and we want consumers who share protected characteristics to experience good outcomes that are consistent with the Equality Act 2010. Effective monitoring and evaluation by firms is crucial to achieving this."*

The FCA's commitment to "fair value" as outlined in the new Consumer Duty demonstrates that they recognise their responsibility for regulating markets that are fair for all. But, for existing regulatory frameworks to be brought to bear on the issue of discriminatory pricing there must be proper processes in place.

Our expectations of firms and regulators

Tackling discriminatory pricing and algorithmic bias poses a potentially daunting task for firms and regulators alike. However, the expectations set by the Consumer Duty and the legal requirements under the Equality Act provide the framework firms and the FCA need to take action on discriminatory pricing. Rather than hiding behind the complexity of the problem, firms and sectoral regulators have an opportunity to experiment with solutions and innovate to make timely progress on these deep seated issues.

Monitoring

Firms must be responsible for monitoring consumer outcomes for potential discrimination. In the interim, regulators have an important role in demonstrating to firms how that monitoring might work in practice until they are confident firms have developed the necessary data infrastructure and expertise - and that the monitoring is actually taking place.

Adequate explanation/mitigation

Regulators must provide the framework for firms to adequately explain and justify any unequal outcomes they do identify. Firms should be using this framework to make their assessments of whether discriminatory outcomes are justified or whether mitigation is needed. Where steps are needed to address these outcomes, firms should be working closely with the regulator to determine what actions are appropriate.

Culture

Our expectations also relate to the culture around how this problem is considered within firms and in their interactions with the regulator. First, considering the impact of algorithmic bias and ensuring compliance with the Equality Act should be considered a priority within firms - both as a key compliance risk but also as a way of ensuring fair treatment of customers. Accountability within individual firms is also a key part of the puzzle to make sure that consumers and regulators feel confident that firms are delivering fair outcomes. More specifically, firms should have in place a senior individual who is accountable for ensuring the firm is compliant with the Equality Act. The FCA's senior manager's regime and the Consumer Duty both outline approaches to embedding accountability for consumer outcomes at a high level.

Consumer Duty Guidance

10.4 "A firm's board, or equivalent governing body, should review and approve an assessment of whether the firm is delivering good outcomes for its customers which are consistent with the Duty, at least annually."

The second point around culture is that it should be possible for firms to discuss issues around discriminatory outcomes with regulators collaboratively. We're aware that issues around algorithmic bias are novel and that this is an area where firms and regulators are still finding their feet. Several stakeholders have raised that there is a 'first-mover' disadvantage of individual insurers looking into discriminatory pricing.

It is critical that concerns about regulatory censure do not act as barriers to firms addressing this important issue. Having a clear framework in place around monitoring and adequate explanation - as set out by the regulator - would go a long way to addressing this concern. Firms should feel that in following a framework they can have open conversations with the regulator about how to address what they find.

In the interim, as firms look to implement and embed the Consumer Duty and the FCA finds its own feet in regulating under this new approach, it is essential that the FCA

consider ways to overcome these barriers to firms thinking innovatively about how to identify and address discriminatory outcomes.

The FCA has led groundbreaking work in the past on finding ways to overcome regulatory barriers to innovation and to work collaboratively with industry to foster creative solutions to difficult problems. The situation we are currently in with discriminatory pricing is, in some ways, similar. A novel problem has emerged which requires technical engagement and innovation to address, but there are reputational barriers to that engagement and innovation occurring. We think that tools developed by the FCA's work on innovation could be deployed here:

The regulator could look to hold **Tech Sprints** with firms to better understand how to implement novel approaches to monitoring for discriminatory outcomes including the use of proxy data. This would create a safe, collaborative and solution orientated forum where experts from industry, technology and academia could work together on creating tools which firms could then use to monitor their own outcomes. **Regulatory sandboxes** could also be a useful tool to reduce unhelpful barriers to firms looking to address this important issue and to explore approaches to monitoring, explanation or justification.

Future of regulation

Evidence of unfair outcomes for people of colour in the car insurance market suggests that algorithmic bias isn't just a problem of the future but rather an issue that needs to be tackled now. The FCA has the opportunity to get ahead of the curve by assessing and building capability for effective oversight and monitoring of algorithmic decision making.

This could future-proof their regulatory approach as the prevalence of big data and machine learning lead to ever more personalised pricing. We will continue to work closely with the FCA to ensure that people of colour do not pay more than white people for their insurance products.

Recommendations

Our policy recommendations have been developed specifically in relation to our findings of discriminatory pricing in car insurance. However, our suggested approach to ensuring compliance with the Equality Act by monitoring consumer outcomes and working closely with sectoral regulators could apply across any number of consumer markets, particularly those that are grappling with the use of algorithmic decision making.

The regulatory framework

1. The FCA should require there to be an accountable executive (ideally a Board member) who holds responsibility for ensuring the firm complies with the Equality Act.
2. The FCA must ensure that the framework of the Consumer Duty is applied effectively to address the risk of discriminatory pricing. This should be a priority for the regulator - and industry - and be seen as a key measure of the success of the new Consumer Duty.
3. Firms should maintain auditable records of their compliance with the Equality Act, including records of where they have identified discriminatory outcomes.
4. The FCA should set out a framework for what constitutes an adequate justification for discriminatory pricing.

Interim measures

1. The FCA should immediately carry out its own time-limited monitoring of consumer outcomes to assess the prevalence and severity of discriminatory pricing. This monitoring will act as an industry benchmark for this issue and allow firms to demonstrate progress against their commitments under both the Equality Act and the new Consumer Duty.
2. The FCA should consider using tools from its work on Innovation like Tech Sprints to facilitate a collaborative form of engagement with industry. These tools would help the industry and regulators make progress on a deep-seated problem that requires urgent attention.

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