

# Agenda

## Advancing economics in business

### 'Equality' in insurance pricing: the effect of the gender ban

Due to a European Court of Justice ruling in 2011, all insurance products are now priced the same for men and women. Oxera studies had previously considered how this ruling might affect consumers, but what actually happened in practice? Are restrictions on risk-based pricing useful for achieving public policy objectives, or are they just a crude and drastic form of price regulation? What other approaches are there to achieving desired outcomes in insurance markets?

The insurance sector has seen increasing levels of regulatory scrutiny and debate covering issues from the mis-selling of products<sup>1</sup> and review of civil litigation costs<sup>2</sup> to the fairness of pricing. Concern that 'outcomes' for consumers may not match public policy has often led to calls for restrictions on insurance pricing and, in particular, limitations on the use of risk-based pricing. Is it appropriate to ban the use of risk factors in insurance, or are there other, more nuanced approaches that may be preferable?

#### Why risk-based pricing?

In risk-based pricing, underwriters use statistical techniques to translate information about the insured person and the insured event into an estimate of the likelihood (and size) of a claim. As a result, prices reflect the expected claims cost. Such cost-reflective pricing is efficient from an economic point of view.<sup>3</sup> If insurers do not differentiate between groups of individuals with different perceived risk levels, economic efficiency can be lost through:

- 'adverse selection', which occurs if a uniform premium deters the low-risk group from buying insurance while attracting more of the high-risk group. Setting premiums separately for the two groups leads to a more economically optimal level of insurance for all concerned;
- 'moral hazard', which arises when insurance results in customers changing their risk behaviour. For example, a uniform motor insurance premium makes insurance for fast cars more affordable, which in turn might make some drivers take more risks on the road.

Ultimately, however, insurers cannot know all the characteristics of the insured, and some variation in risk has to be shared in the risk pool. The use of risk-based pricing can therefore be described as a spectrum of insurance models, ranging from the extremes of:

- individualisation—where there is full risk-based pricing and individuals pay exactly according to their risk profile; and
- mutualisation—where there is no risk-based pricing and everyone pays the same premium, regardless of their risk profile.

In most European countries, motor insurance is based primarily on the risk profile of the insured, with a large amount of information being collected to estimate this. While information about the age and health of the insured person is used for life insurance products, motor insurance tends to use more information. In contrast, many countries operate systems of health insurance and flood insurance that rely on a high degree of mutualisation, with low-risk customers effectively subsidising high-risk customers.

However, as a result of more data becoming available and becoming cheaper to collect and analyse, the degree of risk-based pricing and the precision with which risks can be measured have increased over time. Risk characteristics also change over time. Competition incentivises insurers to explore new ways to measure risks—an insurer that measures risk more effectively is able to offer more competitively priced products to lower-risk customers, while maintaining profitability.

Medical underwriting knowledge, for example, has increased enormously and has kept up with medical research. In the past, a cancer patient would not have been able to obtain life insurance, but now, with increasing understanding of the implications for life expectancy, life insurance can be offered after a certain period of time.<sup>4</sup>

**The concept of fairness**

Risk-based pricing is often considered to be an 'efficient' procedure, by ensuring that prices that each customer faces reflect the average costs that the customer imposes on society; but it is also sometimes criticised for not producing 'fair' outcomes. While many people would accept that it is fair for a reckless driver to pay higher motor insurance than a careful driver (ie, risk-based pricing), this is not the case with some types of insurance which may be seen to have important social implications. The most obvious example is health insurance, with all European countries offering some form of mutualisation in their health insurance systems.

Public policy objectives may seem to clash with the outcomes of individualisation in some cases, and this can lead to calls for restrictions on risk-based pricing in order to shift the outcome closer to mutualisation. But simply banning the use of a particular risk factor in pricing can be quite a drastic remedy, which can have severe unintended consequences for the provision of insurance products. From an economics point of view, banning risk factors is a crude form of regulation, which can lead to the misallocation of resources as the benefits of market-based allocation are lost, without necessarily achieving its social objective. This is particularly likely when, as in the case of the ban on the use of gender as a risk factor, it has been applied as a result of legal argument, without significant analysis of its likely effects.

In addition, there are other, less-intrusive remedies for helping to achieve public policy objectives. Policies that largely leave insurers free to set prices, but provide incentives or safety nets to ensure the market outcomes that the regulator is trying to achieve, should help to balance efficiency and fairness. Some examples are discussed later in this article.

**The recently imposed ban on the use of gender**

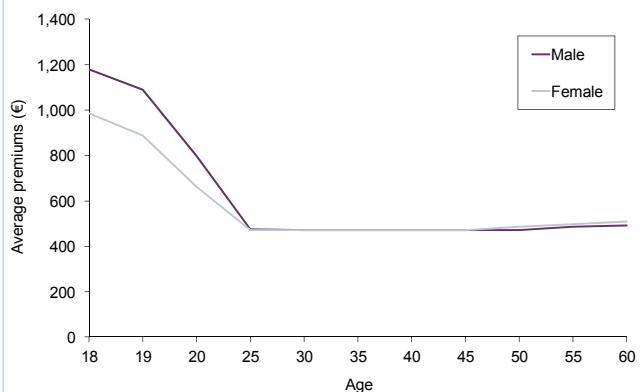
The *Test Achats* case in the European Court of Justice in 2011 led to gender being banned as a risk factor in insurance pricing in the EU from December 21st 2012.<sup>5</sup> *Test Achats* argued that the use of gender represented gender discrimination—for example, before the ban, young men paid more for motor insurance than young women, all else being equal. This is because young

men, on average, make more and larger claims than young women, which has been linked to risk-taking behaviour while driving, and is common across all EU countries. The trend is clear from the claims data, which closely matches the premium data before the ban (as one would expect with risk-based pricing); see Figures 1 and 2 below.

It is notable, however, that this gender difference occurs mainly in young people. Men and women aged 40 paid the same premiums as there was no evidence of a difference in their risk levels.

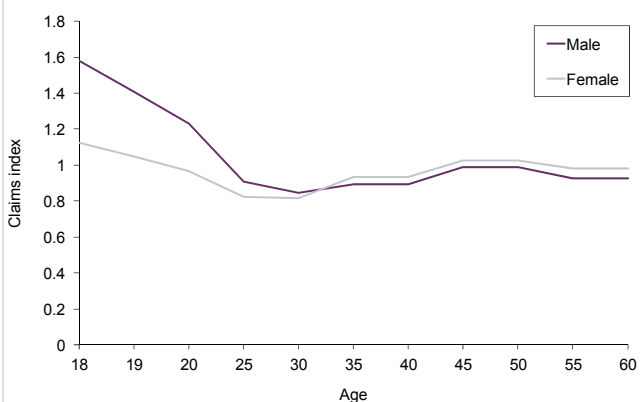
Despite being clearly linked to risk levels, some saw this treatment of young men and women as unfair. In reality, some young men are careful drivers and some young women are reckless drivers. There was a perception that charging different premiums to men and women was somehow gender discrimination, and therefore unfair. But was banning the use of gender the right response?

**Figure 1 Motor insurance premiums in Germany by gender and age**



Source: Oxera analysis of premiums data from a German price comparison website (<http://www.check24.de>).

**Figure 2 Motor insurance claims in Germany by gender and age**



Source: GDV.

### The impact of the ban on gender

In 2011, before the ban came into effect, Oxera published a study on its expected impact.<sup>6</sup> It was expected to result in changes in premiums for men and women, as a new unisex premium would be required. It was not expected to lead to the collapse of insurance provision, as gender is not the most important risk factor in most cases (age is often more important, for example), but it might create additional costs for insurers (which would be passed on to consumers).

Were these predictions right? Oxera has collected data on premiums for the products considered in the 2011 study (term life insurance, motor insurance and pension annuities) for a selection of European countries immediately before and after the ban on gender. Premium data was collected from price comparison websites for a specific (although reasonably typical) insured person and motor vehicle, focusing on the three most competitive quotes received, in early December and late December 2012 (before and after the ban).<sup>7</sup> Other researchers have used similar methodologies.<sup>8</sup>

The new unisex prices were found to be mostly between the previous prices for men and women, as expected. There was some variation but, in all countries, the gender ban has resulted in young women paying more for motor insurance—see Figure 3 below. In Italy, premiums increased across the board over this period, while in the UK the average premium fell (as premiums fell more for young men than they rose for young women). This limited dataset does not provide clear evidence of additional costs arising (and therefore premiums rising on average)—a longer dataset would be required to explore this.

A similar picture was found for term life insurance and pension annuities. Here, mortality risk is the key driver of costs (but in opposite directions for the two products). At any given age, women have lower

average mortality rates than men, and therefore women paid less for term life insurance before the ban (as their average risk of dying during the insured term was lower).

Now that the ban is in place, the new unisex premium for term life insurance is generally much closer to the former male premium than the former female premium, as expected, since a larger proportion of the customer base is male. This means that the price drop enjoyed by men has been much smaller than the price increase for women. In the UK, the new post-ban unisex premium turned out to be slightly higher even than the male premium before the ban; however, this may reflect changes in other costs (eg, long-term interest rates) over this short period. See Figure 4 below.

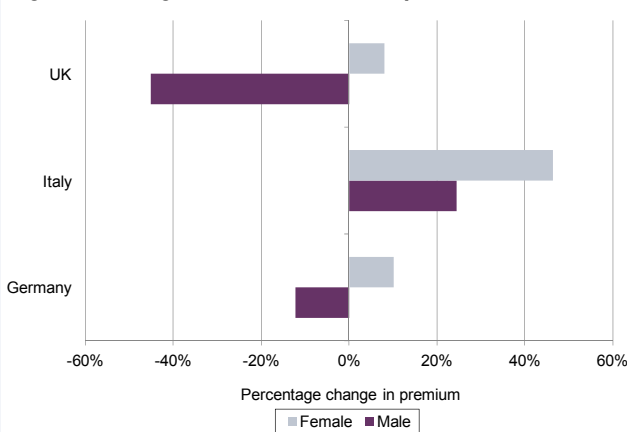
All the products continue to be offered to both men and women of all ages, however, as gender is not an important enough risk factor to make private insurance provision untenable.

### The solution was more risk-based pricing, not less

Simply creating unisex premiums is not the end of the story. Lower-risk young drivers (eg, careful drivers) continue to want the best deals, even if risk-based pricing has been restricted. Similarly, insurers continue to want to offer the most competitive deals to these lower-risk drivers. This creates demands for new ways to identify risk—enhancing risk-based pricing despite the ban—such as the increasing popularity of telematics in the UK.<sup>9</sup>

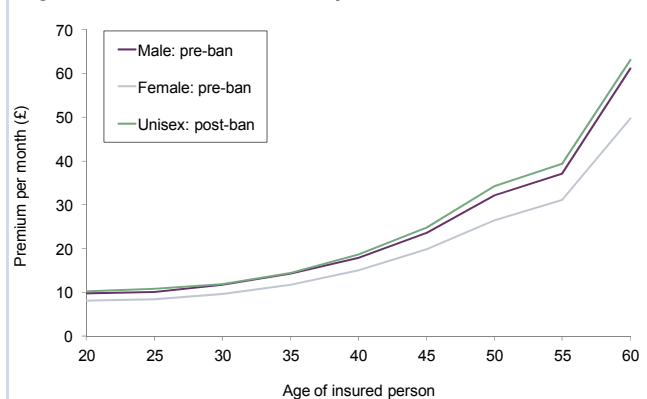
The reason why insurers used the correlation between risk profile and gender before the ban was because collecting data on actual driving behaviour was either too costly or too intrusive to be economic. But with new technology, and the increased economic benefit available to insurance companies if they can identify the low-risk drivers, the incentive to identify risk

**Figure 3 Change in motor insurance premiums**



Source: Oxera analysis, using price comparison website data.

**Figure 4 Term life insurance premiums in the UK**



Source: Oxera analysis, using price comparison website data for a standard term life insurance policy with a £200,000 cover amount.

through higher-cost mechanisms has led to telematics becoming more economic. For example, young female drivers can now achieve a larger reduction in premiums if they can 'prove' that they are lower-risk without invoking the fact that they are female.

Assuming that young male drivers do not reduce their risk-taking behaviour, in principle the result of telematics would be quite similar to risk-based pricing that includes gender—young men will pay higher insurance premiums, on average, than young women, although there will now be more variation in premiums within each gender group. However, a change in driving behaviour is possible—indeed, likely—as telematics (like other forms of risk-based pricing that depend on behaviour) could encourage drivers to take less risk, which is likely to have societal benefits.<sup>10</sup> This in turn should lead to lower motor insurance premiums on average, as well as a redistribution between drivers.

Ultimately, more risk-based pricing, not less, could resolve concerns about some young men paying higher motor insurance despite being careful drivers. Telematics, for example, could deliver a significant increase in the precision and extent of risk-based pricing, so that careful drivers can enjoy premiums reflecting their low risk profile. However, this is currently still more costly than asking potential customers their gender, and these additional costs will need to be recovered from customers.

This suggests that more risk-based pricing (not restrictions on it) could, in fact, provide a sound basis for resolving the concerns that led to the ban on the use of gender.

### Alternative remedies?

Risk-based pricing typically produces efficient outcomes and will generally be the result of competitive pressure in the insurance market. But in some cases it may not be seen to produce desirable outcomes from a public policy perspective, for example if it results in premiums that are considered unaffordable for some groups of people. So what are the alternatives?

A few years ago, concerns were raised about age discrimination in insurance—for example, about elderly people not being able to obtain travel insurance, because insurance companies would either not offer it at all or only do so at unaffordable prices. Oxera analysis for the Government Equalities Office<sup>11</sup> asked two questions:

- is there any evidence of age restricting access to travel insurance unfairly?
- if so, what remedy would be appropriate?

Oxera found that, while some providers did not offer travel insurance to customers because of their age, or

did not offer them competitive prices, many others were offering competitive prices. Those prices appropriately reflected the cost of providing the insurance (which is higher for older people due to medical insurance being included, and because of their higher risk of requiring medical assistance and/or such assistance being more expensive).

The suggested remedy was therefore signposting. By telling consumers where they could find suitable products, even if a particular insurer did not wish to supply it, the problem of access was resolved.

In another study,<sup>12</sup> Oxera investigated how to support the provision of private sector flood insurance. A crude solution could have been to restrict risk-based pricing, perhaps by banning the use of information about flood risk in determining property insurance premiums. But to do so would have created an incentive for insurance companies to find another way to avoid offering insurance to those they 'knew' (or suspected) were in a relatively high flood-risk area. Additional measures would therefore be needed to ensure that each insurance company provided flood cover for a fair number of high-risk properties. In addition, those in low-risk areas would have faced additional costs, while there would have been no incentive to avoid building houses in flood-risk zones.

There are, however, other remedies. Oxera suggested an approach that would require only limited government subsidy or cross-subsidy, and would maintain an incentive not to build in high flood-risk areas, while offering affordable property insurance to those homes currently in high flood-risk areas.

This approach would involve the majority of households still buying their property insurance on commercial terms, according to their risk profile. But for households above certain risk thresholds—primarily those in high flood-risk areas—there would be an alternative insurance product, subsidised by the taxpayer or through cross-subsidy from all household insurance policies, that would offer insurance at a fixed premium. This premium would be higher than the typical premium for a household outside of high flood-risk areas, but would provide a ceiling to property insurance rates for any one household. The mechanism would be market-based, as the decision to enter the state-run insurance pool would be determined by the premiums offered to households by the private insurers, and therefore the mechanism would not need to determine the risk levels of different households (which would be done by the market).

This method could achieve the public policy objective of allowing all households access to affordable property insurance, without destroying the benefits of risk-based pricing for most households. Incentives would remain

for households and government to avoid building in flood-risk areas, as the fixed premiums would still be significantly higher than the average (non-high-risk) premium.

## Concluding remarks

Risk-based pricing benefits consumers by incentivising them to purchase an appropriate level of insurance, and by improving the economic efficiency of insurance

provision. In some cases, market outcomes from risk-based pricing may be seen to be inconsistent with public policy objectives, but often, even in these cases, the best solution does not involve widespread restrictions on risk-based pricing. Alternative remedies that allow prices to continue to be cost-reflective can be available and may often be preferable to rather crude regulation involving the banning of the use of specific risk factors.

<sup>1</sup> See Oxera (2009), 'Secondary Products: the Case of Payment Protection Insurance', *Agenda*, June.

<sup>2</sup> See Oxera (2011), 'Regulatory Reform: Changes and Consequences in the Legal Services Sector', *Agenda*, October.

<sup>3</sup> For an overview of moral hazard, adverse selection and the economics of insurance more generally, see Rees, R. and Wambach, A. (2008), 'The Microeconomics of Insurance', *Foundations and Trends in Microeconomics*, 4, pp. 1–163.

<sup>4</sup> See Oxera (2012), 'Why the Use of Age and Disability Matters to Consumers and Insurers', report prepared for Insurance Europe.

<sup>5</sup> Case C-236/09, *Association Belge des Consommateurs Test-Achats and Others v. Conseil des Ministres*, March 1st 2011.

<sup>6</sup> Oxera (2011), 'The Impact of a Ban on the Use of Gender in Insurance', report prepared for Insurance Europe. See also Oxera (2010), 'The Use of Gender in Insurance Pricing: Analysing the Impact of a Potential Ban on the Use of Gender as a Rating Factor', report prepared for the Association for British Insurers; and Oxera (2011), 'Gender and Insurance: Impact on EU Consumers of a Ban on the Use of Gender', *Agenda*, December, all available at [www.oxera.com](http://www.oxera.com).

<sup>7</sup> This approach collects real quotations that consumers would receive, but necessarily applies to only one scenario.

<sup>8</sup> See, for example, Which? (2013), 'Equality or Extra Profits?', March, pp. 42–3, which found large price increases for motor insurance for young people in the UK.

<sup>9</sup> In this context, telematics refers to the use of a black box in vehicles that sends information on driving behaviour back to the insurer, which then determines the premium. Among other factors, the black box measures location, time of day and length of time of driving, cornering, braking and acceleration.

<sup>10</sup> Such new technologies may, however, introduce new problems (eg, in relation to data protection).

<sup>11</sup> Oxera (2009), 'The Use of Age-based Practices in Financial Services', report prepared for the Government Equalities Office, May, available at [www.oxera.com](http://www.oxera.com).

<sup>12</sup> See Oxera (2011), 'Why does it always Rain on Me? A Proposed Framework for Flood Insurance', *Agenda*, September.

If you have any questions regarding the issues raised in this article, please contact the editor, Dr Leonardo Mautino: tel +44 (0) 1865 253 000 or email [l\\_mautino@oxera.com](mailto:l_mautino@oxera.com)

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