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Agenda

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The use of gender in insurance pricing: unfair discrimination?

Why do men and women often pay different prices for their insurance policies? In light of the ongoing debate at national and EU level about gender discrimination, here we look at why gender is currently used as a rating factor in insurance pricing, and what impact a potential ban on using gender in this way would have on insurers and consumers

When setting prices for insurance products, insurers take into account several factors to ensure that their prices reflect the risks and other costs of provision. Gender is one such factor, and has long been used by UK insurers in pricing insurance products that cover those risks that differ between men and women.

The EU Gender Directive of December 13th 2004 (Council Directive 2004/113/EC) provides for equal treatment between men and women in the access and supply of goods and services. While prohibiting the use of gender in the calculation of premiums and benefits, the Directive contains one exemption: under Article 5(2), Member States can allow 'proportionate differences' in insurance premiums and benefits where the use of gender is a 'determining factor' in the assessment of risk 'based on the relevant and accurate actuarial and statistical data', provided that Member States ensure that such data is 'compiled, published and regularly updated'. Most EU Member States, including the UK, have implemented this opt-out clause and allow insurers to use gender as a risk-rating factor and to differentiate by gender when pricing insurance policies, subject to meeting the requirement for objective justification.

Despite this objective justification, the use of gender in insurance pricing remains subject to debate at the European level, and claims of unfair or unequal treatment between men and women in insurance provision continue to be advanced against insurers by some stakeholders. Similar debates apply to age, disability and other factors.[1]

The European Commission is currently reviewing the implementation of the Gender Directive across different Member States and may recommend changes to it. The European Court of Justice is also expected to rule on the legitimacy of using gender in pricing insurance and whether such a clause contravenes European human rights legislation.

In light of these developments, this article examines the current use of gender in insurance pricing and discusses the impact that a potential ban on the use of gender might have on insurers and consumers in the UK insurance market. The article draws from a recently published Oxera report commissioned by the Association of British Insurers (ABI).[2]

Overview of main points

- **Risk-based pricing is key to the efficient operation of private insurance markets.**
- **There are significant gender differences in accident, morbidity and mortality risks, and hence the different costs of providing the same level of insurance cover. Gender is considered when it helps the accuracy of pricing products that cover these risks.**
- **In line with UK gender legislation (and the EU Gender Directive), the use of gender as a rating factor is based on actuarial and statistical data on gender risk differences.**
- **A ban on a relevant rating factor such as gender cannot be achieved without costs. These costs could be significant and would ultimately be borne by consumers.**
- **Among other adverse effects for consumers, motor insurance premiums for young females would increase (by up to 25% on average, based on modelling), and pension income for the majority of annuitants would fall (by 2% or more).**
- **Just removing gender as a rating factor does not necessarily achieve gender neutrality in insurance prices. Strict gender-neutral pricing would often be very costly, if not impossible, to achieve.**

This article is based on the Oxera report for the Association of British Insurers, 'The use of gender in insurance pricing: analysing the impact of a potential ban on the use of gender as a rating factor', ABI Research Paper No. 24, 2010. Available at www.oxera.com.

What explains the use of gender in insurance pricing?

In private insurance markets, insurers need to earn sufficient income from premiums to cover the claims from the insured. This means that they must be able to calculate accurately the average expected loss, and charge a price for insurance accordingly. As a result, motor insurance premiums are linked to the risk of the policyholder being involved in an accident and its likely severity (accident risk); medical insurance premiums are linked to the risk of the policyholder falling ill (morbidity risk); and term life insurance premiums and pension annuity benefits are linked to the uncertainty around the timing of the eventual death of the policyholder (mortality risk).

There are significant differences between females and males in their accident risk, morbidity risk and mortality risk. The costs of providing insurance products that cover these risks therefore differ between men and women, and these cost differences explain gender-differentiated prices.

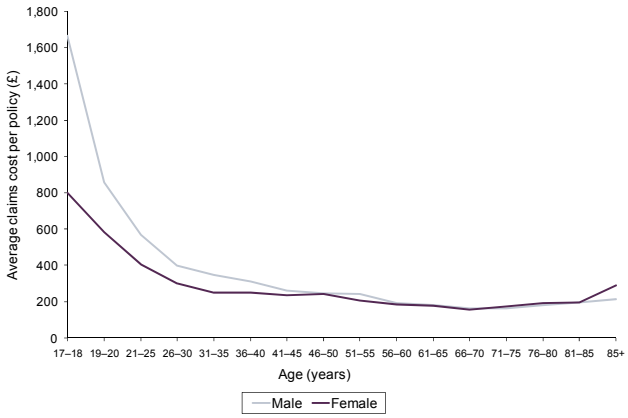
Gender is used as a risk-rating factor only when it helps to price the risks covered by the insurance products in question. It is used in addition to (and in combination with) other rating factors and, for some products, gender is the second-most important factor used (after age). Where gender is not related to risk differentials, it will not be used in pricing decisions, and men and women will be offered the same price.

Despite prices for many insurance products differing according to gender, there is no evidence in Oxera's analysis of significant systematic bias in the pricing of insurance in the UK against any particular gender. There is also no corresponding detriment for females or males in the sense of either gender being overcharged compared with the costs that they (as a group) impose on insurance providers. Any such overcharging should not be sustainable in a competitive product market.

The use of gender varies depending on the product and the gender risk differential. For motor insurance, all else being equal, young female drivers currently pay significantly less than young male drivers owing to the lower risk of young female drivers being involved in accidents and the resulting lower claims costs per policy sold (see Figure 1).

For private medical insurance (PMI), gender differences in medical conditions explain why premiums tend to be higher for females aged 35 to 55 than for males of the same age, but lower for females than for males from the age of 60 onwards. The premium differentials reflect the differences in some medical conditions and resulting claims costs. For example, in the UK, breast cancer is far more common in women than in men. In addition, given that different illnesses tend to happen at different times of life, the differences in costs between men and women vary for different age groups. For example, heart diseases, which are more commonly suffered by men than by women, also become more prevalent at older ages.

Figure 1 Average claims cost per policy for motor insurance



Note: Based on aggregate ABI market data for motor insurance in 2006, collected and published in accordance with HM Treasury guidelines.
Source: Oxera report prepared for ABI (2010).

In the case of life insurance and pension annuities, the gender differentials in premiums or benefits can be explained by differences in the life expectancies of men and women. Owing to their lower mortality risk, women benefit from lower premiums on life insurance.

For annuities, women may receive a lower annuity payment in any year, but this payment stream can generally be expected over a longer period of time, such that for the same lump-sum annuity purchase price, women receive the same (or indeed higher) total annuity benefit as men (see Table 1).

The impact of a potential ban on the use of gender in insurance

Some may consider the use of gender differentials in insurance pricing to be unacceptable per se, even if it can be justified by objective evidence and is 'fair' from an actuarial perspective. For example, some view it as simply unfair to set insurance premiums on the basis of factors over which an individual has little or no control, as in the case of gender (and, for example, age but not, say, smoking habits).

However, a ban on the use of a relevant rating factor such as gender cannot be achieved without costs. These costs are most significant where gender is highly correlated with risk—where there is no correlation, there is no impact (and gender would not be used in product pricing in the first place).

This means that those who object to the use of gender as a rating factor on the grounds of fairness or other

Table 1 Pension annuities and life expectancy: benefits from the purchase of an annuity of £100,000 at age 65

	Annual annuity income (£)	Further number of years expected to live	Total annuity benefit (£)	NPV of annuity benefit (5%) (£)	NPV of annuity benefit (10%) (£)
Male	6,510	17.37	113,079	74,395	52,654
Female	6,111	20.04	122,464	76,244	52,059

Note: This table shows the average annual annuity payments for a 65-year-old, non-smoking man and woman (standard annuity, purchase amount £100,000, single-life, non-escalating), obtained from a price-comparison website (find.co.uk). Life-expectancy data is based on Office for National Statistics (ONS) Interim Life Tables, using 2006 to 2008 data. The total annuity benefit is calculated as the simple product of the annual annuity payment and the number of years expected to live, without discounting. The NPV refers to the net present value of the annuity payments, at two different illustrative discount rates.
Source: Oxera report for ABI (2010).

reasons would need to take into account the full consequences of a gender ban. They would need to weigh the perceived benefits against the efficiency costs resulting from a restriction on risk-based pricing, as well as against the wider distributional impacts and other aspects of fairness that may be compromised. The main categories of impact are described next.

Redistribution: winners and losers

The removal of gender as a rating factor leading to prices at unisex rates would result in the lower-risk gender experiencing increases in premiums (or reductions in benefits) in order to cross-subsidise the higher-risk gender. The benefiting gender varies by product. Broadly speaking, under unisex pricing for motor and life insurance, females would be worse off, while in the case of pension annuities males would be worse off. For example, a requirement to price pension annuities at a unisex rate might increase the annuity rates for females, but this could be achieved only at the detriment of male annuitants. Since most current annuities are for male policyholders, the main impact would be a reduction in the retirement income for the majority of annuitants (and their spouses or other dependants).

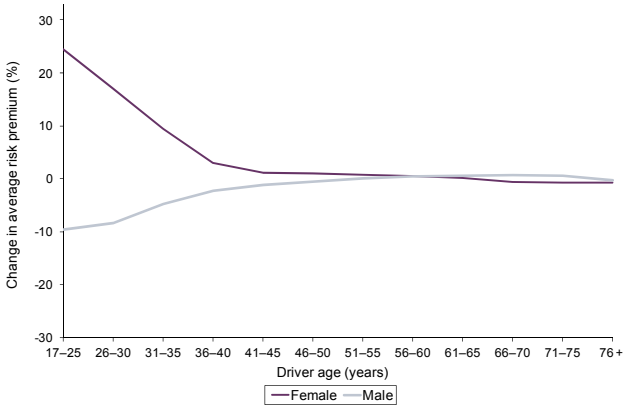
As another example, Figure 2 shows the results of modelling the redistributive impact of removing gender as a rating factor from motor insurance pricing. Female drivers under the age of 25 would experience average premium increases of almost 25%. Male drivers in the same age group, on the other hand, would benefit from an average 10% reduction in their premium. Is this fair, or fairer than gender-differentiated premiums? When the issue is purely about (re)distribution, this is not a question for economists to answer.

Impact on individual insurers and supply response

There are, however, likely to be consequences over and above pure (re)distribution. A ban on a relevant rating factor such as gender corresponds to a restriction on risk-based pricing. From the perspective of an individual insurer, less accurate pricing increases the risk of insurance provision. Insurers have a number of options available to respond to the uncertainty, namely to:

- increase the weight assigned to the other rating factors used in the pricing models (eg, age, engine size, occupation), especially if any of these are correlated with gender;
- search for new rating factors or rating methods to proxy some of the gender-related risks—these other factors or methods are likely to be less accurate, more costly and/or potentially more intrusive for consumers than using gender;
- include a risk margin, either directly by charging higher premiums or indirectly by making changes to the capital reserves (which will also tend to increase premiums)—a greater risk in insurance provision will require higher margins and additional capital to cover the risk;

Figure 2 Changes in motor insurance premiums following a ban on the use of gender



Note: Based on modelling of gender-based rating versus unisex rating for motor insurance by actuarial consultants, EMB. Dataset based on information on policies and modelled claims costs provided by a significant sample of major insurers in 2008.
Source: Oxera report prepared for ABI (2010).

- impose product restrictions to limit the risk coverage (or potentially stop providing insurance cover in the market segment altogether), reducing the level and quality of insurance available for consumers; and

- target the marketing and distribution process to control the gender mix in the insurance portfolio and/or attempt to bias the portfolio mix in favour of the lower-risk gender.

These effects can be expected to be particularly strong during the transition phase, when each insurer is uncertain about the adjustment strategy adopted by other insurers in the market; where insurers have a very unbalanced gender mix in their existing insurance book; when no single insurer can afford to over- or underprice the others and remain in the market; and where insurers are wary of attracting a higher-than-expected share of the higher-risk gender in their customer base. That is, given the competitive dynamics, individual insurers can be expected to take any of the above courses of action to mitigate either current or future anti-selection against their own insurance book. Each action would adversely affect the prices paid by, or insurance cover available to, consumers.

Market-wide impacts: competition and adverse selection

A ban on the use of gender will have a different impact on different insurers (depending on their size, gender mix, distribution channels, etc). This could affect the competitive process in the market—particularly in the transition phase—requiring some insurers to adapt their business models or indeed even close their books or exit the market.

Moreover, the introduction of unisex rates may change consumer demand: the lower-risk gender may purchase less insurance cover (because of the increase in price), and/or the higher-risk gender may purchase more (because, for them, the price has dropped). The average risk in the market could therefore rise, and overall insurance coverage levels could fall. This 'adverse selection' process would require average prices to increase further to cover the higher cost of provision for the remaining group of insured individuals. As a result, low-risk consumers may exit the market because the unisex rate represents such poor value to them.

In practice, given the nature of the insurance products considered (eg, compulsory motor insurance), unisex pricing is unlikely to trigger such significant market-wide adverse selection effects. Nonetheless, some demand adjustments can be expected: for example, young females may delay the purchase of a car, whereas young male drivers may be induced to buy larger and more powerful cars than they otherwise would, which may have negative implications for road safety. Also, in the annuity market, concerns about adverse selection (in the form of men opting against annuitising their pensions) may increase in the UK if recent government proposals to abolish compulsory annuitisation are implemented.

Concluding remarks

A ban on using a relevant risk-rating factor such as gender in insurance pricing cannot be achieved without cost. While it may be possible to make one group of consumers better off than before, this can be achieved only by making others worse off.

One concern about the use of gender as a rating factor is linked to the stereotypes or stigma associated with any form of gender differentiation, in particular in light of the overall inferior average socio-economic status of women. However, when it comes to insurance, this concern is diminished in that, for some products like motor insurance and life insurance, women are rated as lower risk and benefit from lower insurance premiums—ie, a ban on the use of gender would make female policyholders worse off.

Finally, it is often not well understood that a simple ban on the use of gender as a risk-rating factor does not necessarily deliver gender-neutral insurance prices. This raises the question of what the objectives of such a ban are in the first place. If there are any other factors in the insurance pricing models that are correlated with gender (including those that are valid risk-rating factors in their own right—eg, occupation, car type, mileage, etc), these will also pick up the correlated gender-related risk in the resulting insurance prices. Therefore, achieving gender neutrality in insurance pricing would require the removal not only of the gender factor to obtain unisex prices, but also of all rating factors that are correlated with gender in the pricing models. This would be very costly, if not impossible, to implement.

[1] For a discussion of the use of age as a rating factor in insurance, see Oxera (2009), 'Age-based pricing: unfair discrimination?', *Agenda*, May.
[2] 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', ABI Research Paper No. 24.

If you have any questions regarding the issues raised in this article, please contact the editor, Dr Gunnar Niels: tel +44 (0) 1865 253 000 or email g_niels@oxera.com

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