

Insurance in the Digital Age: Consumers' Transparency Aversion and Market Equilibria

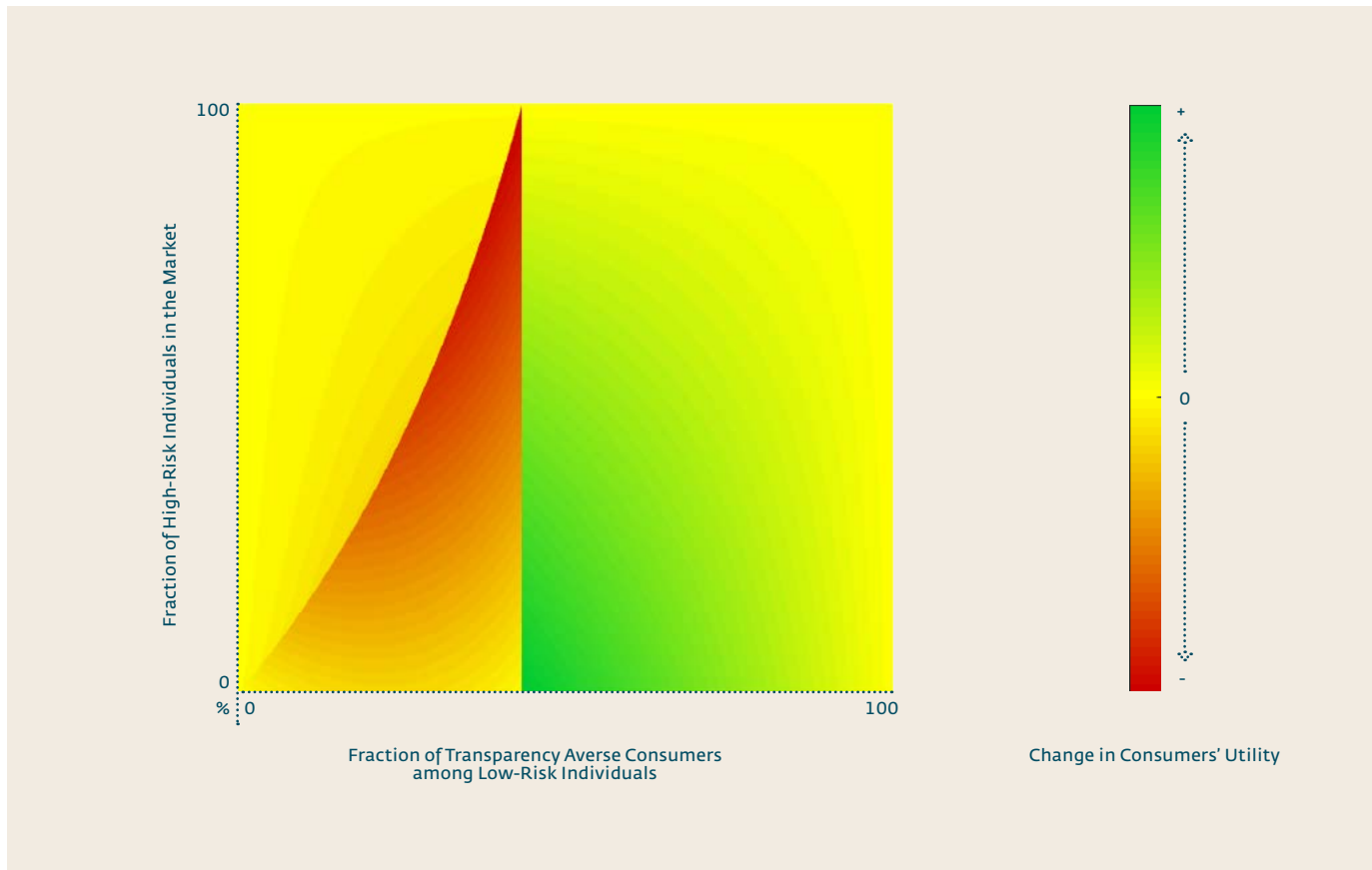


Figure 1: Change in Social Welfare Due to the Availability of a Fairly Priced Full Coverage Insurance Policy that Requires the Revelation of Private Information

Telemonitoring devices, such as wearables in health insurance or telematics systems in car insurance, can be used to screen consumers' characteristics and mitigate inefficient information asymmetries that lead to adverse selection in insurance markets. However, consumers value their privacy and may dislike sharing private information with insurers. In this context, the effect of digitalization on social welfare is ambiguous.

What is Transparency Aversion?

With the ongoing process of digitalization, new technologies are being used to acquire, store and manage more information about consumers, aiming to price insurance policies more accurately and to adjust the underwriting ▶



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Wilson, C. (1977). A model of insurance markets with incomplete information. *Journal of Economic Theory*, 16(2):167–207.

reserves for each policy according to the respective risk. However, as the public discussion about consumer protection shows, some consumers value their privacy and do not feel comfortable sharing too much information with public institutions or companies, such as insurers. They exhibit a disutility from transparency or - in other words - a transparency aversion. The degree of this transparency aversion might differ among consumers but does not necessarily depend on their risk type. It is rather correlated with their valuation of privacy, view on digitalization, cyber security, trust in companies and public institutions with respect to data abuse and related experience, and even their political orientation, e.g. views on consumer rights. The disutility a consumer might face when revealing private information might outweigh the utility increase from a potential premium reduction or higher coverage.

The Option to be a Transparent Consumer

In our analysis, we consider an insurance market with asymmetric information consisting of risk neutral, nonmyopic insurers that operate in a competitive market environment and risk averse consumers who differ in their risk type and transparency aversion.

In our framework, consumers can choose between the standard equilibrium insurance contracts introduced by Wilson (1977)¹, where low risks forgo utility due to

high premiums or low coverage, and an insurance policy that offers full coverage at a fair premium. Due to asymmetric information, the latter contract can only be offered conditional on the revelation of private information. We therefore refer to this contract as the transparency contract. We assume that policyholders' utility from an insurance policy is not only determined by the monetary wealth, but also takes into account the individuals' valuation of privacy. Individuals decide whether to purchase insurance and which policy they prefer by trading off the utility of monetary wealth against the disutility from sharing private information. We show analytically how the introduction of a new insurance policy that offers full insurance at a fair price, but is only offered conditional on the revelation of private information affects the standard Wilsonian insurance market equilibria as well as social welfare.

One Person's Loss is Another Person's Gain

The Wilsonian standard insurance market equilibrium outcomes depend on the fraction of high-risk individuals. If this fraction exceeds a critical value, a pooling contract priced at the average risk does not attract low-risk consumers and therefore the market equilibrium is described by two self-selecting separating contracts.

Hence, the impact the availability of a transparency contract has on social welfare is ambiguous and

depends on the composition of individuals in the market, with respect to their risk type and transparency aversion (see Figure 1).

Our analysis shows that offering an insurance policy conditional on the revelation of private information can substitute deductibles for consumers, whose aversion to share private information is sufficiently low, and lead to a Pareto improvement of social welfare. This situation is illustrated by the rectangle on the right side of the heat diagram (the green and yellow shaded area). However, if all individuals are offered the same insurance contract that is priced at the average risk, consumers who exhibit a transparency aversion and high-risk individuals can be worse off. In this case, utility is shifted from individuals who choose not to reveal their private information to those who choose to reveal.

The overall welfare loss is highest when the initial fraction of high risks in the market is just falling short of the pivotal fraction and the share of transparency averse low-risk individuals is relatively high. This situation corresponds to an initial pooling equilibrium that is turned into a separating equilibrium by the introduction of the transparency contract. The most pronounced case of this situation is represented by the red shaded area in the heat diagram. ♦