Behavioral Insurance

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Artificial Conversational Agents – Changing the Norms?

Does human economic behavior change when interacting with artificial conversational agents as opposed to other human beings? One of the most recent technological disruptions in the financial services industry is the pervasive replacement of human to human interactions by human to machine interactions. Conversational agents sell insurance policies and settle claims often without any human involvement. Similar disruptive developments are observable in other financial services. What are the consequences of these technological developments for the norms of interaction?

What are Artificial Conversational Agents?

A conversational agent is a software program which is able to interpret and respond to requests and statements made by human users in natural language. It is based on an integration of computational linguistics techniques with interaction via the internet. Artificial conversational agents, also referred to as chatbots, are designed to handle full conversations by imitating the flow of a human to human interaction. In this way, chatbots utilize the power of artificial intelligence to learn from human interactions in order to improve the “humanness” of a respond, in addition to better understanding a human users’ intents. While humans exhibit beliefs, desires, intentions as well as perspectives and are aware that other people also have such beliefs, desires, intentions as well as perspectives, conversational agents are merely following predefined rules, which interact with each other and the external input from humans. The understanding that humans have such complex cognitive functions is referred to as the “theory of mind” (Premack and Woodruff, 1978). This ability of humans to understand each other as possessing such a mind is believed to be crucial for social interaction.

The move towards human-machine interactions represents a paradigm shift with regard to the nature of communication between companies and their customers and has many, currently unknown, behavioral consequences. Human-machine interactions may affect economic behavior in many dimensions. A key dimension for insurance companies settling claims and banks issuing loans is the honest reporting of otherwise not or only partly observable outcomes. Dishonest behavior results in significant welfare losses and is an important contemporary topic in behavioral and experimental economics (Fischbacher and Föllmi-Heusi, 2013; Abeler et al., 2014). Welfare losses have their origin in the underlying information asymmetries between firms and their customers in case of uncertain outcomes. Under asymmetric information, an insured individual can be inclined to falsely report a loss or the size of a loss because the realization of the loss is to some extend unobservable by an insurer (Arrow, 1963). Similarly, when deciding about loan repayments, asymmetric information provides...
incentives for strategic default (Mayer et al., 2014). Interestingly and often misread, rational models of decision making predict this type of dishonest behavior if the expected financial benefits outweigh the expected losses when caught lying. Empirical findings, however, suggest that honesty norms are relevant to economic decision makers (Gaechter and Schulz, 2016) and that individuals exhibit prosocial preferences (Levitt and List, 2007) that help reducing welfare losses by limiting the extent to which people lie.

The relevance of prosocial preferences and norms are likely different in the absence of a human counterpart implying higher utility losses from telling a lie in the interaction with a human as opposed to a machine. In one of the first studies on this topic, Cohn et al. (2018) show that lying is more prevalent when interacting with a machine as opposed to a human. Understanding how conversational agents impact honest reporting of claims in insurance and repayment capacity in banking is of paramount importance for future business models in financial services. Since dishonesty in such settings poses a severe negative externality to markets, e.g., through an increase in insurance premiums resulting from more fraudulent claims, credit rationing resulting from an increase in strategic defaults or even market failure. This implies a crucial relevance to economic policy with regard to regulation and financial stability as well as behavioral interventions that mitigate negative effects.

Aside from the potentially negative impact of machine interactions on honest behavior, there are different situations potentially benefiting from the lack of social context in machine interactions. In many situations of information asymmetry, such as typical insurance settings and financial stability as well as behavioral interventions that mitigate negative effects.

References


