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The timing of choice-enhancing policies☆

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ABSTRACT

Recent studies investigate policies motivating consumers to make an active choice as a way to protect unsophisticated consumers. We analyze the optimal timing of such choice-enhancing policies when a firm can strategically react to them. In the model, a firm provides a contract with automatic renewal. We show that a policy intending to enhance consumers' choices when they choose a contract can be detrimental to welfare. By contrast, a choice-enhancing policy at the time of contract renewal increases welfare more robustly. Our results highlight that policies should be targeted in timing to the actual choice inefficiency.

1. Introduction

Automatic-renewal contracts are prevalent in many services such as mobile-phone plans, mortgage contracts, and Internet-connection subscriptions. With mounting evidence that some consumers exhibit systematic behavioral biases, there are concerns that firms may use automatic renewals to exploit unsophisticated consumers. To protect such consumers, policies that motivate consumers to make an active choice have been discussed and employed.[1] However, two issues associated with such policies have been under-investigated. First, what are the welfare effects of such policies when firms can respond to these policies? Second, when should a policymaker motivate consumers to make an active choice?

This paper analyzes the welfare consequences of choice-enhancing policies when a firm can change its pricing strategy in response to the policies. Section 2.1 introduces our basic model, in which a firm automatically renews its service contract (e.g., a mobile plan) for consumers who bought its initial package (e.g., a smartphone with a teaser-rate mobile plan). Some consumers are naive present-biased à la O'Donoghue and Rabin (1999a), whereas all others are time-consistent and rational. Each consumer incurs a positive switching cost (e.g., an effort cost to search for a different firm or to cancel the contract) when she either forms a contract with some other (non-default) firm or opts out of the service before the automatic renewal. Section 2.2 describes how our model can be mapped to markets with automatic renewals, such as mobile-phone plans, mortgage contracts, and Internet-connection subscriptions.

Section 3 analyzes the model and presents our main results. The

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[1] For example, Florida House Bill 751 in 2010 states that "[t]he burden [of contracts with automatic renewal provisions] is generally placed on the consumer, who may not always notice the provisions, to terminate the contract. Therefore, consumers may ultimately contract for a period longer than anticipated." The bill requires sellers to "clearly and conspicuously disclose automatic renewal provisions to consumers" and "provide written or electronic notification to consumers no more than sixty and no less than thirty days prior to the cancellation deadline." In Section 5, we extensively discuss other real-world policies which have been employed (or could be employed) in each industry mentioned above.

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firm faces a trade-off between selling both its initial package and recurring service to all consumers at moderate prices and exploiting naive present bias by selling its initial package and recurring service to only naive consumers at high prices. If the firm chooses the exploitative pricing strategy, rational consumers will choose a contract with a different firm and incur a socially inefficient switching cost. In this case, the firm serves fewer customers but earns a higher profit per customer.

We first analyze the effect of a policy that makes it easier (or more attractive) for consumers to switch to a competitor when choosing a contract. As long as the firm does not change its type of pricing strategy (or if the firm's pricing strategy is exogenously given), then such a policy always increases each consumer's utility and social welfare. By contrast, we show that if the firm changes its type of pricing strategy in response, then this policy can strictly decrease consumer and social welfare. Intuitively, because naive consumers may procrastinate on their switching decision, rational consumers are more responsive to the policy (i.e., more likely to switch to a competitor in response to the policy) than naive present-biased consumers are. Because the policy makes rational consumers less profitable for the firm, exploiting naive consumers (who are less price elastic and less responsive to a policy than rational consumers are) becomes relatively more attractive. As an optimal response to the policy, the firm may increase its prices to exploit naive consumers. Hence, the policy can reduce naive consumers' long-run utility, and thus the effect of decreasing the switching cost at the time of choosing an initial contract on the equilibrium prices is non-monotonic. This is a perverse result because such policies typically aim to protect naive consumers. In this case, social welfare also decreases because rational consumers switch and thus incur a (socially wasteful) switching cost.

As an alternative policy, we then investigate a policy that makes it easier for consumers to switch to a competitor right before the contract renews automatically. As a practical example of such an alternative policy, a firm could be required to inform consumers prominently about how to cancel its service right before the contract renewal. We show that—in contrast to the policy above which is effective right before the contract is signed—this alternative policy always (weakly) increases consumer and social welfare. Intuitively, under the alternative policy, both rational and naive consumers are more likely to consider switching right before the automatic renewal. When both types of consumers plan to switch at the same time, the policy will not give the firm an additional incentive to increase its prices. Consequently, the alternative policy does not have the perverse effect of inducing the firm to increase its prices. This logic and our policy implications apply whenever naive consumers are less responsive to a policy than rational consumers are. Thus, to avoid the perverse welfare effect, it is important to target choice-enhancing policies *in timing* to the actual choice inefficiency.

In Section 4, we investigate extensions and modifications of the model. We show that our main message remains unchanged when we allow consumers to be inattentive to the price after the automatic renewal rather than to be naive present-biased, analyze the case where the firm can charge fees for its recurring service multiple times, endogenize competition among firms, give the firm the option to offer menu contracts, or consider partially naive and sophisticated present-biased consumers. Section 5 describes concrete choice-enhancing policies that have been (or could be) employed and discusses them with respect to the welfare predictions of our model: (i) information provision policies such as saliently explaining the contract terms or sending notifications at a time of an automatic renewal; (ii) taxes, subsidies, and price regulations to encourage switching to alternatives; and (iii) opt-in, opt-out, and active-choice policies. Section 6 concludes. Proofs are provided in Appendix A.

1.1. Related literature

This paper contributes to the literature on behavioral public policy.[2] As the most closely related studies, Carroll et al. (2009), Keller et al. (2011), and Chetty et al. (2014) investigate the policy effects on active choice. These studies focus on cases where a policymaker either decreases consumers' switching costs to zero or forces consumers to make an explicit choice. In contrast to these studies, we investigate the case where a policymaker can reduce consumers' switching costs, but the reduced switching cost is still positive and consumers themselves decide whether to switch. We extensively discuss the real-world applications and interpretations of such a policy in Section 5.

This paper is also related to two theoretical literatures: pricing for unsophisticated present-biased consumers and the equilibrium effects of policies. First, the literature on behavioral industrial organization studies how firms can exploit consumers' time inconsistency and naivete.[3] Building upon this stream of the literature, we focus on the policy implications of enhancing active choice and analyze how the timing of policies can affect consumer and social welfare.

Second, recent theoretical and empirical studies analyze the equilibrium effects of policies when consumers are inattentive.[4] These studies find that policies that intend to help consumers, such as price caps or increasing naive consumers' attention, may reduce consumer welfare in equilibrium. Although we are not aware of any study that investigates the perverse welfare effect of reducing switching costs under consumer naivete, our theoretical mechanism of the perverse welfare effect is related to the existing studies. As probably the closest one, based on Gabaix and Laibson's (2006) shrouded add-on model, Kosfeld and Schüwer (2017) investigate an intervention of increasing the proportion of sophisticated consumers in the market. They show that the intervention can decrease social welfare because it may increase the proportion of consumers who (socially inefficiently) substitute away from an add-on consumption.[5] To the best of our knowledge, however, the timing of policies and the differences in the resulting welfare effect have not been investigated in the literature. Complementing but beyond the previous studies, we highlight the perverse welfare effect of a conventional policy, analyze how the timing of policies can lead to different welfare effects, and derive implications on the optimal timing to employ a policy.

In a recent paper, Johnen (2017) analyzes a model in which a fraction of consumers have limited memory and firms can use automatic-renewal contracts to price discriminate between consumers with different degrees of bias. He shows that competition between firms may exacerbate consumer exploitation in equilibrium and hence can decrease social welfare compared to a monopoly. Though his main focus (i.e., the perverse effect of competition) is different from ours (i.e., the timing of employing a policy), in line with our results, Johnen (2017) also finds that sending reminders in his model is more beneficial right before a contract renewal than right before an initial contracting. The underlying intuition of his policy result, however, is different from the

[2] O'Donoghue and Rabin (2003, 2006) investigate the welfare effect of tax and subsidy policies under present bias and naivete. Baicker et al. (2015) analyze the design of health insurance under behavioral biases. For surveys of behavioral public policy, see Mullainathan et al. (2012) and Chetty (2015).

[3] See, for example, DellaVigna and Malmendier (2004), Kőszegi (2005), Gottlieb (2008), Heidhues and Kőszegi (2010), and Heidhues and Kőszegi (2017).

[4] For the theoretical literature, see Vickers and Zhou (2009), Armstrong and Chen (2009), Piccione and Spiegler (2012), Clippel et al. (2014), Grubb (2015), Spiegler (2015), and Ericson (2016). For the empirical literature, see Duarte and Hastings (2012), Handel (2013), Grubb and Osborne (2015), and Damgaard and Gravert (2016).

[5] Precisely, Kosfeld and Schüwer (2017) show that the intervention can decrease social welfare when firms keep employing the same type of pricing strategy, whereas the intervention may lead them to switch to a different and less exploitative type of pricing strategy. However, the source of welfare losses differs because the perverse welfare effect in our model occur when a firm switches to a different and more exploitative type of pricing strategy. This difference stems from investigating different types of biases and policies. More importantly, our results highlight that employing a policy with a different timing can improve welfare more robustly. Specifically, if policymakers could employ Kosfeld and Schüwer's (2017) intervention after consumers can substitute away (e.g., they cannot buy a GPS at an airport to avoid renting it), but before consumers' initial contracting (e.g., renting a car at the airport), then the intervention (e.g., disclosing GPS rental prices at the airport) would not decrease social welfare.