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Abstract

The monetizing of internet users' personal information has become a very popular revenue source in the Web 2.0 age. Although users commonly accept the commercialization of their personal information in exchange for using services free of charge, this can lead to privacy concerns. Previous studies have investigated consumers' willingness to pay for privacy protection. It has been shown that some internet users are unwilling to pay for privacy, while others are willing to do so, but only a few cents. A new approach focuses on offering privacy-enhancing technologies in the form of a Freemium model, which gives users the ability to use the free version of a service – as is usual – or to receive additional privacy control functionalities through a premium version in return for a monthly fee. We investigated the willingness to pay for the premium version, using the example of Facebook as well as Google. In a web-based survey, 160 German-speaking internet users were asked to estimate the price for the premium versions. We found the optimal price for the premium version of Facebook to be 1.67 euro per month, while the optimal price for the premium version of Google varied between approximately 1.00 euro and 1.50 euro.

Keywords: Willingness to Pay, Freemium, Privacy-enhancing Technologies, Facebook, Google, Information Privacy Research.

1   Introduction

Many providers in the Web 2.0 era offer their services free to users. Instead of charging a fee, other revenue sources can be used, such as monetizing user information by collecting, storing, analyzing, and even selling it. However, the commercialization of personal information can lead to privacy concerns. Previous research has investigated how consumers value their information privacy. In this context, it is important to distinguish between user willingness-to-accept (WTA), which means willingness to provide personal information in exchange of the use of a service, and user willingness-to-pay (WTP), i.e. the willingness to pay a fee for privacy protection (Grossklags and Acquisti, 2007). The latter, for instance, relates to privacy-enhancing technologies. While previous studies have proved consumers' WTA and have shown that it is much higher than their WTP (Horowitz and McConnell, 2002), ambivalence in user WTP has been demonstrated. For instance, Tsai et al. (2011) established, in the context of e-commerce, that some consumers are willing to pay a premium for privacy protection when privacy policy information is made more salient and accessible, and that businesses might leverage privacy protection as a selling point. Besides, Bauer et al. (2012) found that approximately half of a Facebook users' sample are not willing to pay a single euro for keeping their personal information, while the rest are willing to do so.

Focusing on the different results described above, we investigated internet users' WTP for privacy protection, using the example of the social network Facebook as well as the search engine Google. The findings, based on an online survey of 160 German-speaking internet users, show a much higher WTP than previous studies when privacy protection is offered in the form of a premium version of services that contains additional privacy control functionalities. In particular, we measured the WTP by applying van Westendorp's price sensitivity meter and estimated the optimal price for the premium version of Facebook at 1.67 euro per month. The optimal monthly fee for the premium version of Google was shown to be between 1.00 euro and 1.50 euro. The study's results suggest that it might be profitable for Web 2.0 service providers to offer a privacy protection-based premium version of their services. While we documented how much a premium version could cost, we have so far been unable to provide evidence concerning to what extent consumers really would opt for a premium version and what determinants impact on their decision. To complete our WTP research approach, we will address these questions in our future research by applying an experimental design based on this preliminary study's results.

The rest of the paper is structured as follows: In the next section, we will describe the Freemium model and show how privacy-enhancing technologies may be suitable for the premium version of a service. Subsequently, the research design and data collection approach of the study will be shown. Section 4 will provide the procedure and the statistical analysis results. We conclude with implications on the viability of privacy protection in the form of Freemium, as well as our next research steps.

2   The Relationship between Information Privacy and Freemium

Freemium is a combination of free and premium (Bekkelund, 2011). The idea goes back to a blog post by Fred Wilson (2006), who described it as follows: *"Give your service away for free, possibly ad supported but maybe not, acquire a lot of customers very efficiently through word of mouth, referral networks, organic search marketing, etc, then offer premium priced value added services or an enhanced version of your service to your customer base."* The concept is based on three essential premises: First, it is possible to provide digitized services on the internet with incremental costs close to zero. Next, offering the service for free establishes a large user community, not least because of viral marketing effects. And finally, some of the free users will be willing to pay for value added services (Anderson, 2009; Bekkelund, 2011). In practice, the Freemium model commonly consists of a free (basic) version of a service, with the option to subscribe to a premium version in return for a

monthly fee. Pujol (2010) suggested to distinguish Freemium offers concerning quantity (e.g. limiting on time), features (e.g. limited functionalities, or rather advanced functionalities), and distribution (e.g. non-commercial versus commercial usage). Since we focus on Freemium with an emphasis on privacy-enhancing technologies, we refer to the Freemium feature typology and understand value added services as advanced privacy control functionalities.

In general, Freemium is described as (part of) a business model in which the conversion from free users to premium users is essential for success (Anderson, 2009), since the premium users (mostly) finance the free offering. However, there is usually no requirement to convert free users into premium users when talking about user data-based services, since monetizing personal information is the basis of already working business models. This is also why it would not be advisable to substitute the commercialization of user information through fee-based offers. Instead, Freemium supports user WTA as well as user WTP, and might be a promising complementary approach to address internet users' privacy concerns while providing a potentially lucrative revenue stream for service providers. Hence, this study's aim is to investigate the WTP for privacy protection in the form of a Freemium model. In particular, we seek to answer the following research question:

RQ1: How much are internet users willing to pay for the premium version of a service containing advanced privacy control functionalities?

3 Research Design and Data Collection

Data was collected through an open web-based survey of German-speaking internet users. Participants were invited via Facebook and e-mail by using the university's mailing list. The questionnaire was placed online for a week (September 11 to September 18, 2012) and achieved a total of 160 fully completed responses. 67.5% of respondents were female and 31.3% male. The respondents were aged between 15 and 49, with an average of 24.9 years. The majority of participants were students, who accounted for 70.6%.

3.1 Developing the Premium Versions

We asked the participants to imagine that they were able to use Facebook or Google for free as usual, but there was now also an option to pay a monthly fee to get the premium version of the service, which allows for greater privacy control. They were then asked to compare the free and the premium versions of the services and estimate how much they would be willing to pay for the additional privacy control functionalities. While the description of the free versions was based on the services' own statements, the fictional premium versions addressed diverse privacy-related points. According to Smith and Milberg (1996) and Malhotra et al. (2004) several dimensions constitute privacy concerns. For instance, these are collection, errors, unauthorized secondary use, improper access, and control. We believe that correcting personal information errors in suppliers' databases and preventing improper access to personal information should go without saying. Therefore, we only focus on the aspects of collection, unauthorized secondary use and control of personal information for the development of our fictional premium versions of Facebook and Google. For instance, the fictional premium version of Facebook allowed users to definitely delete produced content, as well as to stop the collection of personal information and its distribution to other firms. The premium version of Google ensured control of search protocol storage and localization procedures, and also to control the distribution of personal information and its possible usage for advertising.

3.2 Measuring the Willingness to Pay

In prior research, several methods have been applied to estimate WTP like the Becker DeGroot & Marschak (BDM) method (e.g. Bauer et al., 2012), simple closed-ended questions (e.g. Grossklags and

Acquisti, 2007), or the conjoint analysis method (e.g. Hann et al., 2007). Another approach is the price sensitivity meter (PSM) by van Westendorp (1976). The PSM not only takes into account the maximum price but also the minimum price a product should cost, recognizing that too low a price indicates lack of quality in an offer. Based on four questions, PSM provides points of marginal expensiveness (MEP) and marginal cheapness (MGP), as well as a range of acceptable prices between them, the optimal pricing point (OPP), and the indifference price (IDP). This is why we measured the WTP applying the PSM with the four questions below. Since similar Freemium services such as Skype, Dropbox, or Spotify provide a first impression regarding the premium version's monthly fee, we used a ratio scale up to 10 euro. However, it is important to bear in mind that the PSM, in contrast to other applied methods, does measure price consciousness, but does not measure the propensity to buy (van Westendorp, 1976). We will investigate the latter in further research.

- At which price on this scale are you beginning to experience [the premium version] as cheap?
- At which price on this scale are you beginning to experience [the premium version] as expensive?
- At which price on this scale you are beginning to experience [the premium version] as too expensive – so that you would never consider buying it yourself?
- At which price on this scale you are beginning to experience [the premium version] as too cheap – so that you say "at this price the quality cannot be good"?

4 Data Analysis and Results

Following van Westendorp's (1976) method, the participants' answers to these four PSM questions were aggregated and yielded four cumulative distributions. Also, the first two questions regarding respondents' perception of *cheap* and *expensive* were reversed and yielded the cumulative distributions of *not cheap* and *not expensive* in addition. As the major part of respondents stated integer prices, an interval of 0.50 euro was applied for cumulation. The cumulative distributions were then shown as graphs in a diagram in which the X-axis refers to the price and the Y-axis refers to the cumulative percentage of participants (Figures 1 and 2).

The point of marginal cheapness is determined by the intersection of the two graphs *too cheap* and *not cheap*. It defines the premium version's bottom price as a lower price is not advisable, since the percentage of users considering the premium version as *too cheap* would exceed the percentage of users considering it as *not cheap* (Reinecke et al., 2009). At this point and in the following, we formalized the two graphs as mathematical functions focus on the price points before and after they cross. Then the interception point was approximately computed by equating them. By doing so, the MGP for Facebook is shown as 0.55 euro. The point of marginal expensiveness results from the intersection of the two graphs *too expensive* and *not expensive*. It defines the premium version's upper price limit, as by exceeding this point, the number of those perceiving the premium version as *too expensive* would be larger than the number of those perceiving it as *not expensive* (Reinecke et al., 2009). Facebook's MEP is 5.80 euro. The range of prices between MGP and MEP defines the range of acceptable prices (van Westendorp, 1976), which in the case of Facebook varied from 0.55 euro to 5.80 euro. However, the optimal pricing point (OPP) is given when consumers' purchase resistance is the least, or rather when an equal number of users believe the premium version is *too cheap* or *too expensive* (Reinecke et al., 2009).

Focusing on the interception point of the graphs *too cheap* and *too expensive*, the OPP for Facebook is 1.67 euro (Figure 1). Furthermore, van Westendorp (1976) suggested that the indifference price is given at the interception point of the graphs *cheap* and *expensive*, and he considered this to be the normal price. In the case of the premium version of Facebook, the distributions cross at approximately 20%, which indicates a price of 2.76 euro (Figure 3). This means that 20% of consumers experience the premium version as *cheap* and another 20% experience it as *expensive*, while 60% (100% – 2 x 20%) perceive it as normal. There is a big difference of 1.09 euro (2.76 euro – 1.67 euro) between IDP and OPP. Thus, the results suggest that Facebook users value their personal information higher than they are willing to pay a fee in order to protect it.
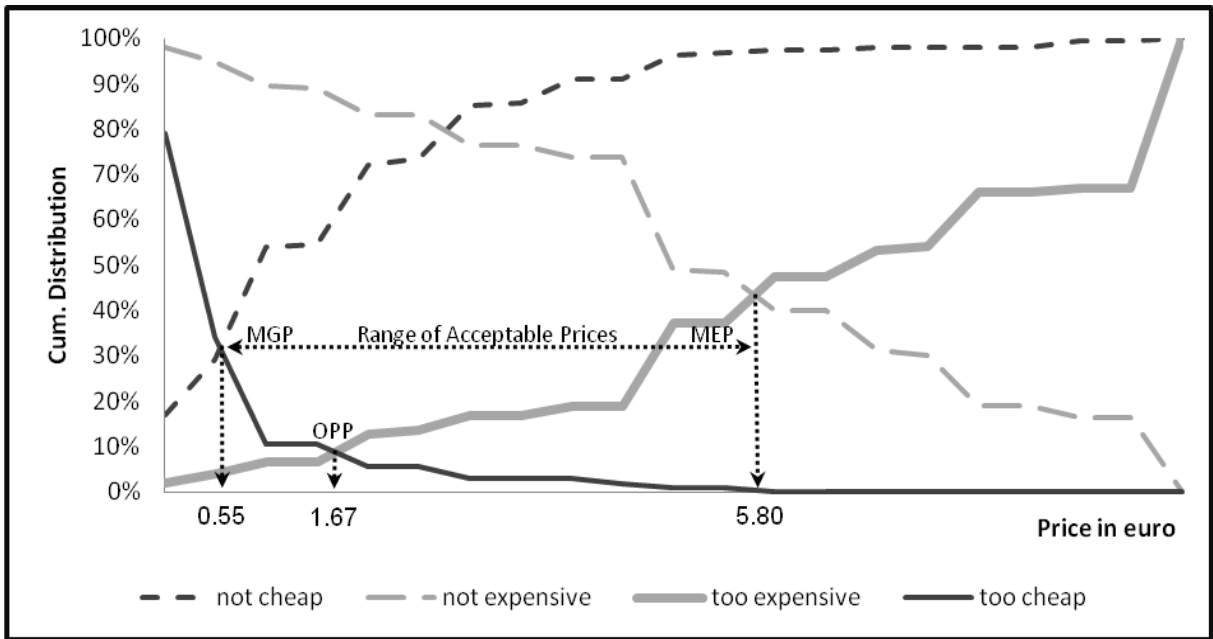
Figure 1.   PSM for Facebook

Focusing on the premium version of Google, we found the point of marginal cheapness at a price of 0.48 euro, while the point of marginal expensiveness was 4.88 euro. Comparing the MGP, as well as the MEP of Facebook and Google, shows a smaller range of acceptable prices for Google than for Facebook. In particular, Facebook's MEP was found to be approximately one euro higher. Besides, it is very difficult to determine Google's OPP, since the graphs *too cheap* and *too expensive* are almost congruent between a price at 1.00 euro and 1.50 euro (Figure 2). Although the distributions cross at a price of 1.52 euro, it is more realistic to assume the OPP lies somewhere in this range. However, Google's OPP is definitely smaller than that of Facebook. Google's indifference price is 1.97 euro (Figure 4), which means that there is a lower difference between IDP and OPP than in the case of Facebook.
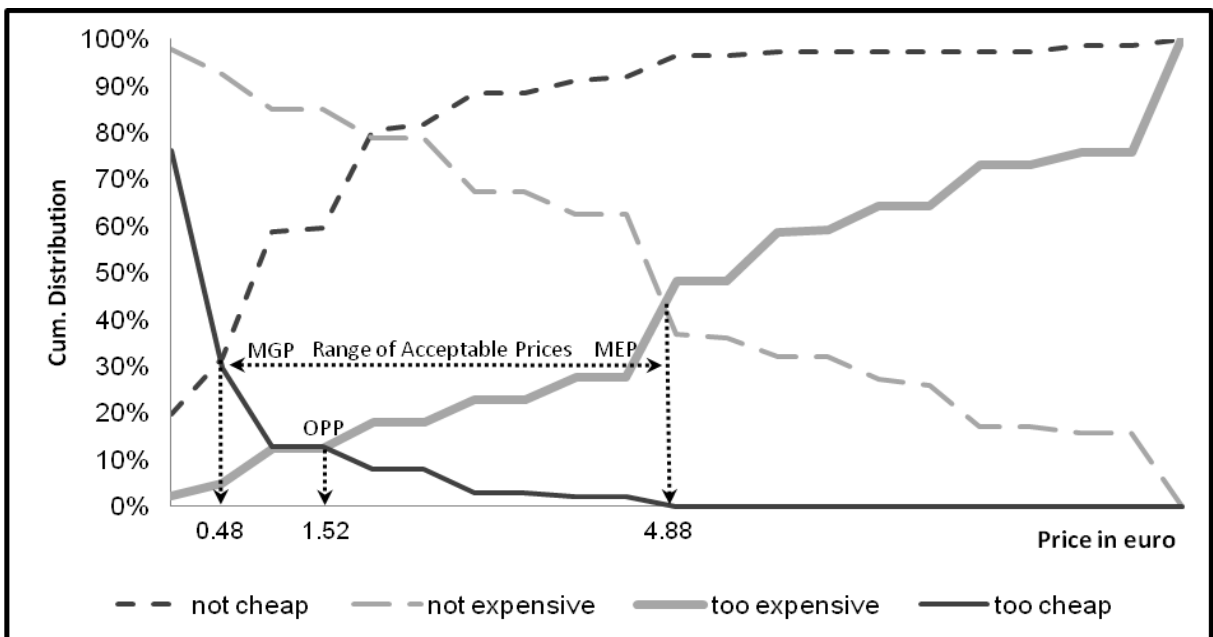

Figure 2.   PSM for Google

5   Implications and Further Research

Our findings indicate that offering privacy-enhancing technologies for a fee could be an alternative for both service providers and their users. In particular, the study's results suggest that it is possible to realize additional privacy-control functionalities in the form of a Freemium model as consumers were able to imagine possible premium versions of the services and to estimate their prices. Regarding optimal pricing points, it might be quite profitable for service providers to leverage privacy protection as a value added service. For instance, Facebook's OPP is found at 1.67 euro (approximately US$2.00). If only 5% of the one-billion Facebook users opted for the premium version at a monthly fee of US$2.00, the social network would earn an additional US$ 100 million per month, without the advertising revenue achieved from free version users. The example shows the opportunities for Freemium, even if they might depend on the service as Google's lower OPP (1.00 to 1.50 euro) suggests.

In contrast to our results, several previous studies have found the WTP to be only in the range of a few cents. In view of this discrepancy, an overestimation as a result of selection bias is conceivable. For instance, internet users who were less concerned about their privacy also were less interested in the study's topic, and so they more likely did not participate in or dropped out of the survey. However, 60% of the participants who started answering also have completed it. On the other hand, consumers might value the premium versions more since, from their perspective, they receive an upgrade of the service with new functionalities. With respect to the privacy paradox, it is also possible that the respondents' answers, given in the hypothetical context of this study, would not correlate with their de facto behavior (Acquisti, 2004; Acquisti and Grossklags, 2005). Therefore, in our future research, we will examine to what extent consumers really opt for the premium version as well as the relevant determinants having an impact on their decision. In order to achieve more convincing evidence, we intend to use the estimated prices of this preliminary study in an experimental study design, applying incentive compatible rules to address the privacy paradox phenomenon.

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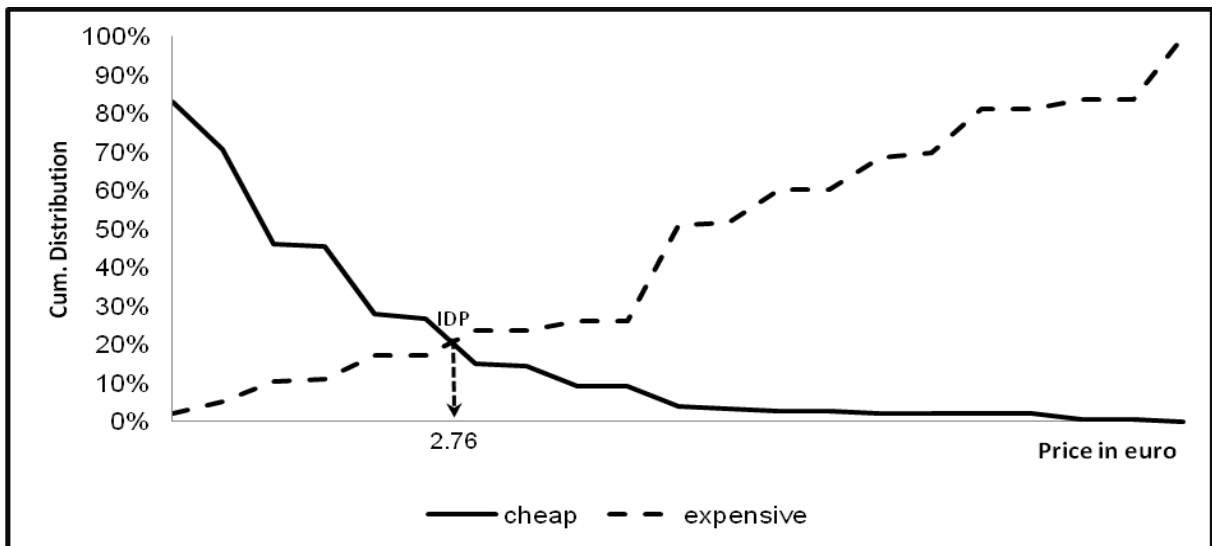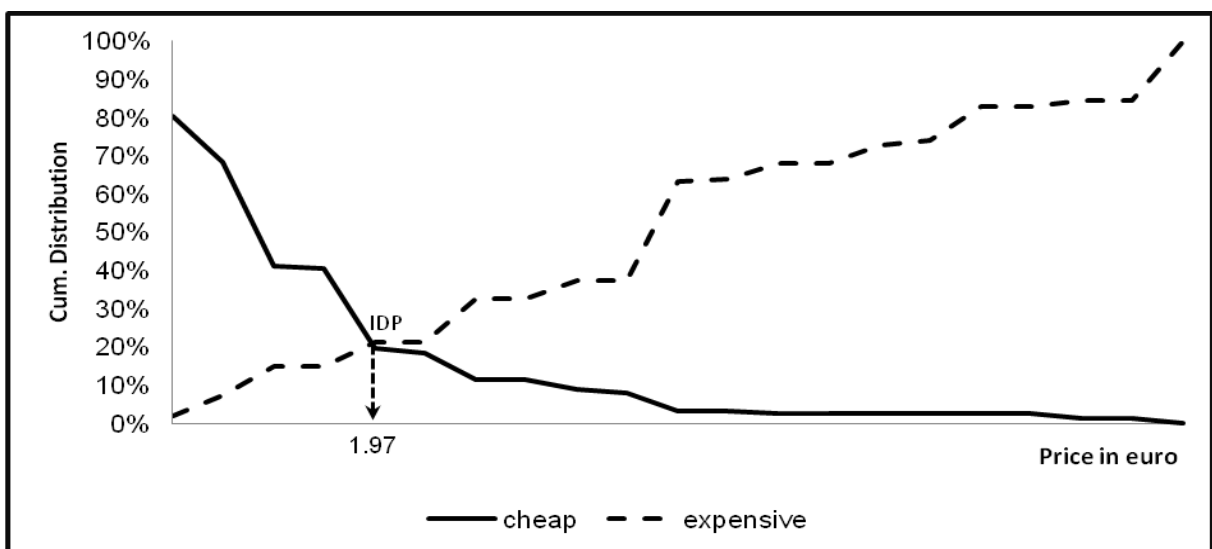
Appendix

Figure 3.   IDP for Facebook

Figure 4.   IDP for Google