Working Paper n° 09-01

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February 2009

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Abstract

Our analysis assessed the impact of information on patients' preferences in prescription *vs* over-the-counter (OTC) delivery systems. A contingent valuation (CV) study was implemented, randomly assigning 1594 people into the receipt of limited or extended information concerning new influenza drugs. In each information arm, people answered two questions: the first asked about willingness to pay (WTP) for the new prescription drug; the second asked about WTP for the same drug sold OTC. We show that WTP is higher for the OTC scenario and that the level of information plays a significant role in the valuation of the OTC scenario, with more information increasing the WTP. In contrast, the level of information has no impact on WTP for prescription medicine. Thus, for the kind of drug (i.e. safe, not requiring medical supervision) considered here, a switch to OTC status can be expected to be all the more beneficial as the patient is provided with more information concerning the capability of the drug.

Conclusions: Our results shed some light on one of the most challenging issues that health policy makers are currently faced with, namely the threat of a bird flu pandemic. Drug delivery is a critical component of pandemic influenza preparedness. Furthermore, the congruence of our results with the agency and demand theories provides an important test of the validity of using WTP based on CV methods.

Key words: WTP, CV, OTC versus prescription, neuraminidase inhibitors, interval-censored regression.

1. Introduction

Recent literature in health care economics has shown increasing interest in the use of contingent valuation (CV) for measuring willingness to pay (WTP) to estimate the economic value of health benefits [1,2]. Based on a survey approach, the CV method involves confronting respondents with a hypothetical market in order to elicit their maximum WTP for a new good or service [3].

One major challenge using CV concerns the fact that individual WTP values may be greatly influenced by the degree of information provided through the survey procedure [4]. Empirical work in environmental [5-7] and health [8-12] economics literature has indeed confirmed this. However, studies to date have highlighted inconsistent effects of additional information on WTP values. In particular, an individual may revise his WTP upward [12] or downward [9] when she/he is provided with additional information concerning the process of care. Other non-health related factors may account for these inconsistencies. It is well known that certain of these factors, such as the mode of delivery, may affect how goods are valued [13,2].

Our study, motivated by the decision of many countries to increasingly switch prescribed drugs to over-the-counter (OTC) status [14] for cost control and consumer empowerment purposes, aimed to assess the possible differential impact of information level on patients' WTP preferences in both delivery systems. Previous studies assessing the benefits associated with such switches [15,18] have used a consumer surplus approach based on observed demand curves. However, the methods employed have not been capable of testing the sensitivity of benefits to the level of information provided to consumers.

The novel aspect of this paper is to examine this informational effect within a CV study. One important contribution of the study is the design and application of a validity test for choosing CV, based on predicted market behaviours of real consumers.

Our study focused on neuraminidase inhibitors (NAIs) which entered most western countries' markets at the beginning of the decade. NAIs alleviate influenza symptoms for 1.5 days provided they are taken within 48 hours after the onset of symptoms. They act on both influenza A and B and are currently prescription drugs not covered by health insurers. Due to their small range of benign side effects and ease of use, they could well be imagined to be made available OTC in the future. We studied the benefits associated with prescription-only and OTC delivery of these drugs, comparing situations when the respondent gets more or less drug related information. In the context of this study (i.e. using a safe and easy to monitor drug) this information mostly referred to clarifying the precise capability of the drug.

2. Materials and methods

2.1 Theoretical background

Two simple uses of well-known economic theories helped us derive hypotheses related to the impact of information and moving from prescription-only to OTC provision. Basing our analyses on the hypotheses arising from these theories, a new test of the validity of the CV approach was provided.

Agency and information

When visiting a doctor, the patient may mostly rely on the doctor's knowledge. As agency theory frames it, the principal (patient) delegates full decision-making authority or a substantial advisory role to the agent (physician) who in turn is expected to be fully or better informed about the most appropriate decisions to be made. In contrast, opting for an OTC medicine requires greater individual choice and self-administration. Although physicians are not perfect agents and pharmacists may partly act as agents, the basic point is that OTC drugs involve more consumer autonomy. If consumers are less well-informed than physicians, the "information hypothesis" is simply that the impact of information on WTP is expected to be more significant (in absolute value) in the OTC scenario than in that of prescription-only. As will be seen below, for the drug evaluated in this study, the expectation was that more information would lead to a greater WTP.

Demand theory and the impact of moving to OTC

According to the economic theory of demand, the benefits to individuals from consuming a good are measured by his/her maximum WTP for it. A simple framework, based on demand theory, already exists to estimate the benefits associated with switching from the prescription-only to OTC scenario [15,18]. Figure 1 depicts a demand curve for a hypothetical drug. The notion of 'cost', as depicted on the vertical axis, incorporates both monetary components (product's retail price, travel expenses) and non monetary elements (time spent - traveling, waiting, consulting the doctor and going to the pharmacy). Pp and P_{OTC} are the costs to the patient of the drug in prescription and OTC scenarios respectively. It is assumed P_{OTC} is less than Pp [15].We assume the cost of the drug is fully borne by the consumer (i.e. not reimbursed by any social insurance) since that is the case in the empirical work reported below.

If the consumer perceives $P_{OTC} < Pp$, then the "switching hypotheses" are:

(*H1*) as total WTP values cover the area ABQ_pO in the prescription scenario and $ACQ_{OTC}O$ in the OTC scenario, the total WTP is expected to be higher in the latter. The gain in net benefits from switching to OTC is represented by the shaded area P_pBCP_{OTC}.

(*H2*) more "zero" answers are to be expected in the prescription scenario, based on the assumed respondents' perception that one sacrifices more in such a scenario thus leading to more refusals to "pay the price";

(*H3*) if zero "answers" are excluded, WTP is expected to be higher in the prescription scenario.

2.2 Data: WTP study

We asked the respondents about their WTP for NAIs in prescription and OTC scenarios. Individuals were randomly assigned into receiving either basic or comprehensive information.

Inclusion criteria

Overall 1594 people participated in the randomized WTP study which took place in the French speaking part of Switzerland during the winter 2000/2001 and the summer of 2001. Both lay people and health professionals were enrolled in the study. Lay people included healthy adults working in hospital administration, patients treated at the outpatient clinics of the University Hospital of Lausanne and military enrollees. The inclusion of health care professionals was aimed at controlling for potential biases (see Sections 3 and 4). The empirical analyses depicted below focus on lay people except where otherwise stated.

Questionnaires

Questionnaires were self-administered. All respondents were first provided with some information on influenza and its health risks, as it was considered that all respondents should have a comparable level of understanding of the disease. In particular, respondents were reminded that once influenza is declared, treatment is mostly symptom related.

Then respondents were asked to imagine they were infected by influenza and were made aware of the availability of a new drug which could reduce the illness's duration. In order to assess the effect of a variation in the level of information provided, participants were randomly assigned to receive either basic or basic plus extended information concerning NAIs. Basic information referred to the capability of the medication[1] and its mild side effects. Those receiving extended information were explicitly made aware of possible misunderstandings concerning the precise capability of the drug. In particular, it was stressed the drug was not active against the common cold and that it was not able to prevent or cure influenza. Furthermore it was highlighted that the drug's shelf life was limited to the period of influenza epidemics (approximately 4 months) and so it could not be stored for the following year. Extended information also drew explicit comparisons by mentioning that NAIs did not replace vaccination. In effect, basic information referred to first-line information as provided by advertisement campaigns; extended information included information that could be read in a "recommendations for use" leaflet. Extended information was neither negative nor positive; it only made it possible for the patient to understand better how the new drug could be used. This in turn led to the hypothesis that more information would lead to a greater WTP.

Finally, all respondents were asked to answer two WTP questions framed into two scenarios. In the first scenario respondents were asked what their maximum WTP would be for this new drug if it were sold as a prescription medicine. The respondent was told the purchase would

[1] i.e. ability to stop further viral replication, thus alleviating the influenza symptoms for 1.5 days if taken within 48 hours after the onset of symptoms

represent an out-of-pocket expenditure[2]. Furthermore it was made clear that the WTP did not include the consultation[3]. The second scenario elicited the WTP for the same new drug if it were purchasable as an OTC drug available without restriction at any pharmacy.

A payment card system was used to facilitate answers. This method is a valid alternative to dichotomous choice questions [19]. The proposed bidding ranges (expressed in Swiss Francs) were: nothing, 1 – 20, 21 – 40, 41 – 60, 61 – 80, 81 – 100, 101 – 150, 151 – 250, 251 – 500, 501 – 1000, more than 1000. Logical steps were used in order to cover a wide range of possibilities to express WTP. Two thresholds were chosen in reference to existing market prices: at the time of the study, the cost of vaccination and drugs were 20 and 80 Swiss Francs respectively. The order of the bidding ranges were randomly offered in a top down and bottom up fashion to exclude starting point biases.

Furthermore, demographic data (gender, age, family status, country of origin), education and employment status were collected for each respondent. Self-assessed health status, prior experience with flu, influenza vaccination and subscription to supplementary health insurance were also investigated.

2.3 Empirical analysis

The empirical analysis evaluated the information and switching hypotheses outlined in section 2.

Econometric specification

[2] not reimbursed by either basic insurance or any supplementary insurance

[3] Note that in Switzerland the consultation cost is covered by basic mandatory insurance except for a mandatory 10% coinsurance rate payment and any expenses incurred below the chosen deductible level

Let i denote the individual, S_p the prescription scenario, S_{OTC} the OTC scenario, Y_{it}^* the respondent's true valuation for scenario t ($t = OTC$, p) and I the information level. I takes the value 1 when information is basic, and 0 when information is extended.

The basic theoretical model to be estimated is the following:

$$\log Y_{it}^* = S_{OTC}\alpha + (S_p * I_i)\gamma_1 + (S_{OTC} * I_i)\gamma_2 + X_i\beta + u_i + v_{it} \qquad (1)$$

($S_p * I$) and ($S_{OTC} * I$) are the interaction terms between the scenario and the information level and capture the impact of information in the prescription and OTC delivery systems respectively, thus providing us with a test for the "*information*" hypothesis. A finding that γ_2 is bigger than γ_1 in absolute value would be consistent with the "*information*" hypothesis. Based on *H1*, α is expected to be positive and significant.

X_i includes socio-demographic and health-related covariates. The selection of covariates includes testing whether covariates have a different impact on WTP for both scenarios.

Y_{it}^* is known to lie in the interval [a,b]. When the patient ticks the "nothing" box, it is inferred that the respondent's true value lies in [0,1][4]. We used a lognormal conditional distribution for valuations [22]. Hence $\text{Log}\,Y_{it}^*$ lies in [log$a$,log$b$] except for the first and last intervals, which were respectively left and right censored. An interval data regression model was estimated. We used a random effects' specification as the answers to the OTC scenario question may have been affected by those on the prescription scenario question [23][5]. Hence, u_i and v_{it} are error components normally distributed with zero means and independent of one another while u_i is the individual specific random effect.

[4] We assume that zero answers can be considered as very small WTP and that any type of strategic behavior pushes such answers toward zero. See e.g.[20,21]
[5] Each respondent answered the valuation question for both scenarios.

To test *H2* and *H3*, the distributions of zero and non-zero answers were compared between both scenarios using Khi2 and Wilcoxon matched-pairs signed-ranks tests respectively. Furthermore, two additional specifications were estimated:

The first uses θ_{it}^{*} as the dependent variable, with $\theta_{it} = 0$ when the respondent ticks the "zero" box and $\theta_{it} = 1$ otherwise. A random-effects probit model was estimated.

$$\vartheta_{it}^{*} = S_{0TC}\alpha + (S_p * I_i)\gamma_1 + (S_{OTC} * I_i)\gamma_2 + X_i\beta + u_i + v_{it} \quad (3)$$

A significant positive impact of S_{0TC} would be consistent with *H2*.

The second deals with *H3*. Excluding those who declare zero values in both scenarios, we can compute difference intervals between both scenarios[6]. Some differences are right censored[7]. An interval regression tobit model was run on the difference between the WTP of the two scenarios. The coefficient of the constant term can be interpreted as the mean difference in WTP between both delivery mechanisms for those respondents always willing to pay a positive amount of money. A significant positive value of the constant term would be in line with *H3*.

Estimating welfare gains

Although rarely carried out in CV studies, we have attempted to illustrate how, for NAI's, the WTP results can be used to estimate gains in welfare from OTC over and above a prescription-only policy, or vice versa. The estimate is illustrative because our sample is not representative of the Swiss population and we did not elicit an exact WTP from each respondent. The first step in the estimation was to plot WTP 'curves' for both OTC and prescription-only scenarios. Starting with highest WTPs on the left and working down the

[6] For example, if the respondent's valuation lies in [1, 20] for the prescription and in [1, 20] for the OTC scenario, the valuation difference between the prescription and OTC scenarios lies in [-19, 19].
[7] See results below

values to zeros on the right, these curves are super-imposed on each other with ‘cost’ or ‘value’ on the vertical axis and number of consumers on the horizontal. Secondly, we used the results from the random effects interval regression to estimate the mean difference in log WTP per person whilst controlling for co-variates. This logged value was then re-transformed to absolute Swiss Francs[8]. This last figure can be combined with epidemiological data on number of people in need of NAIs to calculate the overall welfare gain of one option over the other for the Swiss population.

As the study concerned patient decision making, all analyses were performed only on the population of lay people. For validity purposes, equations 1 and 3 were carried out on the total population (i.e. including health care professionals).

3. Results

1594 subjects were enrolled in the study of whom 66.5% were healthcare professionals (14.5% of these were physicians). Table 1 reports the characteristics of the lay and total populations. As expected from the randomized procedure, no significant difference was seen between the characteristics of subgroups provided with different levels of information. The distribution of education level in our sample is quite representative of the general population. The percentages of individuals with good/very good health and of people with supplemental insurance coverage are slightly smaller than those exhibited in national representative surveys carried out during the same time period [25].

[8] In a model $\log Y = X\beta + \varepsilon$, we have $\partial Y / \partial X = Y(\partial \log Y / dX)$. Therefore the impact of a one-unit change in *X* on *Y* itself can be computed as the predicted value of *Y* multiplied by β. Furthermore, we used the following: if $\ln Y \sim N[\mu, \sigma^2]$, then $E[Y] = \exp(\mu + \sigma^2 / 2)$ (see for example [24]).

The payment card interval choice frequencies appear in Figure 2. Equality tests show that all covariates, except for professional knowledge and the answer bid structure, play a similar role on WTP, independently of the delivery mechanism. The final random-effects interval censored regression and random-effects probit regression are to be found in Table 2.

All our results are in line with the "*information*" and "*switching*" hypotheses.

The results on lay people (first four columns of Table 2) show that, when controlling for covariates, the level of information plays a significant role in the choice of purchasing OTC medicines, with an extended level of information pushing the WTP to higher levels. On the contrary, the level of information has no impact on WTP for prescription medicines. This result is very interesting. When a patient asks for medical advice, he/she entirely relies on the doctor's knowledge. However, when opting for an OTC medicine, the patient feels responsible for his/her own health and requires relevant information to make an informed choice. Thus, the "*information*" hypothesis is validated by these results. Furthermore, the results on the entire population (columns 5-8 of Table 2) show that health care professionals value drugs' delivery by prescription less than non-professionals do. This may be attributable to a knowledge effect: health care professionals may not feel that they need doctor's advice. Again, it could be claimed that this result is consistent with the "*information*" hypothesis.

The results displayed in Table 2 also show that, all other things being equal, WTP is significantly higher when the drug is delivered OTC. This is in line with *H1*. Furthermore, the payment card interval choice frequencies displayed in Figure 2 suggest that the percentage of "zero" answers among lay people is significantly lower in the OTC scenario (22%) than in that of prescription (37%). This is consistent with *H2* and is confirmed by the random-effects probit model performed on the WTP a positive amount for the new drug. Table 2 shows that lay people are more likely to declare a "non zero" WTP for the new drug in the OTC scenario. The Wilcoxon matched-pairs signed-ranks test performed on the subsample of non-zero answers suggested that we could reject the assumption of similar distributions of non-zero answers between both prescription and OTC scenarios and that the sum of the ranks was higher in the prescription scenario when null answers were excluded. The interval regression estimation performed on the difference between the WTP for the prescription and OTC scenarios, displayed in Table 3, confirms this. As explained above, the coefficient of the constant term can be interpreted as the mean difference in WTP between prescription and OTC drugs. This difference proved to be positive and significant. This is in line with *H3*. Overall, the congruence of the results with the predicted theories reinforces the validity of using WTP based on CV methods.

A couple of results were expected for the other covariates in Table 2[9]. The higher the influenza threat (winter time), the greater the WTP. People with a higher education level were willing to pay more for the drug. Higher education may reflect higher incomes. Finally, holding supplementary insurance coverage was not important, something to be expected for a non refundable medical product. However, it could be argued that other results are more surprising. Though we might have expected vaccinated people to be less willing to pay (because they may have felt they were already protected), they expressed a greater WTP for the drug. This suggests that they may have a higher risk aversion or an acute awareness of their personal probability of being affected. Against expectations, younger and not older people tended to favour the drug much more and health status was not significantly associated with WTP. These features tend to suggest that the studied drug was not seen as a traditional treatment but rather as a comfort accessory, which is consistent with the fact that it is

[9] Note that the regressions performed on the population of lay people provide estimates that are slightly less precise but qualitatively not different from those obtained for the total population (i.e. including health care professionals).

preferred in an OTC release form. Finally, it is worth mentioning that patient-specific error terms are significant, thus suggesting that it is relevant to control for patient heterogeneity.

It can be seen from Figure 3 that the WTP curves for OTC and prescription-only options overlap each other several times. The econometric results suggest that OTC is the preferred option in welfare terms. The mean gain is 30.6 Swiss francs per person, which, when multiplied by the number in the Swiss population likely to need (and consume) NAIs [10], leads to an estimated total welfare gain of 6 128 076 Swiss francs.

4. Discussion

In this section, we discuss possible biases which might have affected our results.

One issue that could have arisen was an implicit assumption that the prescription form of the drug had to be more powerful than the OTC version. Furthermore, prescription means that the patient will meet a doctor and although time consuming, this may be more likely to lead to correct diagnosis than through any self diagnosis. Since the OTC version of the medicine was preferred, this bias seems not to have occurred here. Furthermore, the prescription form could have benefitted from a sequence effect which states that WTP is expected to be much larger for the first good of a list of goods [23]. As the WTP question was always asked for the prescription scenario first, our methodology does not allow us to assess whether a sequence effect is present or not. However, we claim that our findings are not qualitatively affected by a sequence effect if one exists and even if one did, then the value of the prescription drug would be overestimated and so minimizing the value of the OTC form, our current results would be reinforced.

[10] 200 000 people, according to the 2007 recommendations in favour of vaccination against influenza published by the Federal Office of Public Health

On the contrary, we must discuss the possibility that some people might have thought that the OTC drug should be sold at a higher price for some reason. Consequently, perhaps our results might have been shaped by possible misunderstandings (about the seriousness of the disease or the characteristics of the drug, such as shelf life) or an implicit assumption that the OTC form should be sold at a higher price because it enables saving on a doctor's visit or because some people might value the advice of pharmacists more highly than that of doctors. Firstly, as explained, all respondents were made aware of the medical risks of influenza; therefore we can exclude the notion that the general population may have under-estimated the seriousness of the disease and consequently favoured a self-administered medication. Secondly, thanks to shelf life information, we can exclude the possibility that some risk-averse people might have thought they could buy the drug OTC in advance. Thirdly, we found that physicians valued OTC and not prescription delivery as much as the general population did. This result can be interpreted as follows: It costs time and perhaps money (in the form of transport costs or cost-sharing) for the general population to see a physician to get a prescription. If the drug is sold OTC, this cost can be avoided. Hence, it may not be surprising that some people would have been willing to pay more for the drug if it were sold OTC. Physicians obviously do not face the same issues of time or money to get a prescription, so one might have expected physicians to be indifferent to the choice between prescription and OTC. However this was not the case, and OTC was shown to be preferred by this group. This important result regarding physicians' preferences enables us to suppose that the findings for the general population are not the result of any bias stemming from a possible perception that OTC drugs should cost more because of inherent savings achieved from not having to consult a doctor or travel. The result for physicians also rules out the possibility that the OTC form is preferred because pharmacists are regarded as better agents than doctors.

Figure 2 suggests that a slight peak was observed for the interval 81 – 100 (especially for the prescription scenario). This may be attributable to the fact that this interval lies right in the middle of the ascending or descending scale. Another explanation is that some people might have already been aware of the drug price (80 Swiss Francs). Respondents were not told the price of the drug or that of vaccination.

We might also discuss the estimation methodology applied here. We specified a parametric distribution for the distribution of WTP and used a lognormal distribution. We also performed estimations with a Weibull distribution, which is used quite often [27]. However, our results were not qualitatively different under this distribution. We also tested our parametric assumption against a semi-parametric proportional hazard specification using a likelihood ratio test [27]. This former could not be rejected.

5. Conclusions

One important contribution of the study was the use of the CV method to assess the benefits from OTC unlike previous studies which used the consumer surplus approach, based on market behaviours of real consumers. Our CV approach confirmed results from earlier studies about OTC welfare gains in the context of a safe drug which treats short-term conditions and which consumers can readily monitor without medical supervision [14]. We have provided a tentative estimate of the size of these welfare gains. We have also shown that the level of information plays a significant role when choosing OTC medicines with increased information pushing the WTP to higher levels. On the contrary, the level of information has no impact on the WTP for prescription medicines. Thus, a switch to OTC status is shown to be all the more beneficial as the patient is provided with more information concerning the drug's capability.

Our results provide some light on one of the most challenging issues health policy makers are currently faced with, namely the threat of a bird flu pandemic. Drug delivery, in addition to vaccination, is a critical component of pandemic influenza preparedness. The results show that switching to OTC may lead to welfare gains and highlight the importance of providing comprehensive information to the patient. The paper also provides a useful test of the validity of the CV approach, enhanced as a result of several specific hypotheses arising from predictions from the demand and agency theories.

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Figure 1: Demand curve for drugs

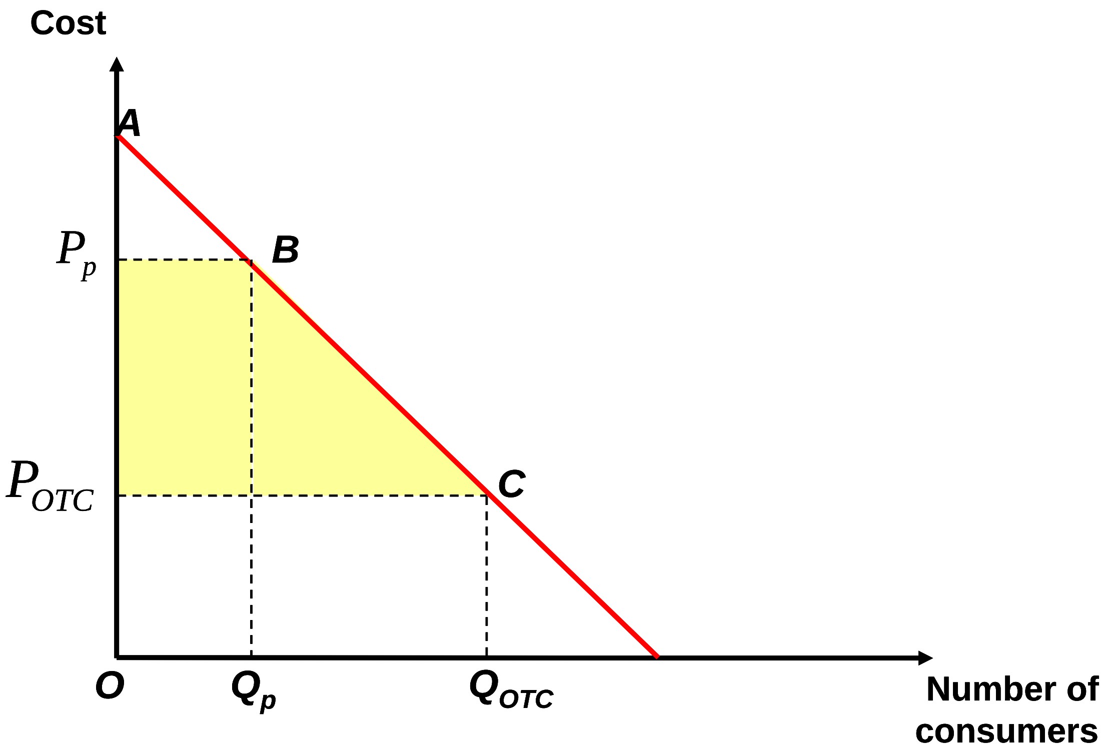
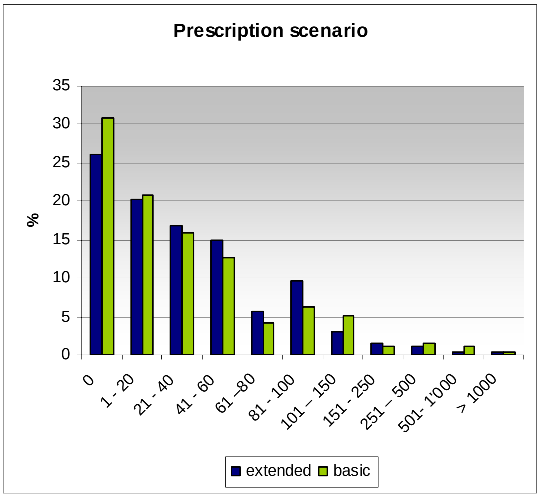


Figure 2: Interval choice frequencies for prescription and OTC scenarios, by information level



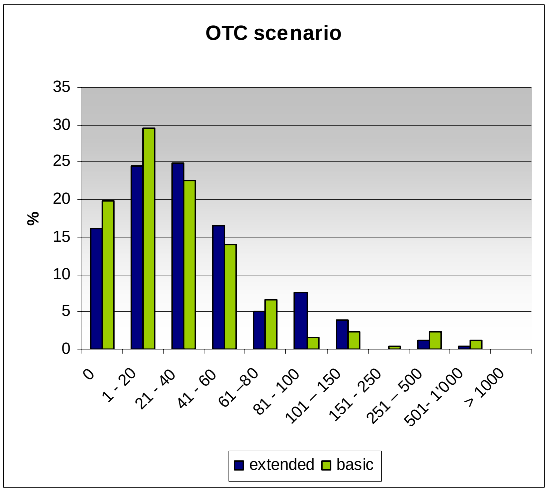


Figure 3: WTP curves for OTC and prescription-only options

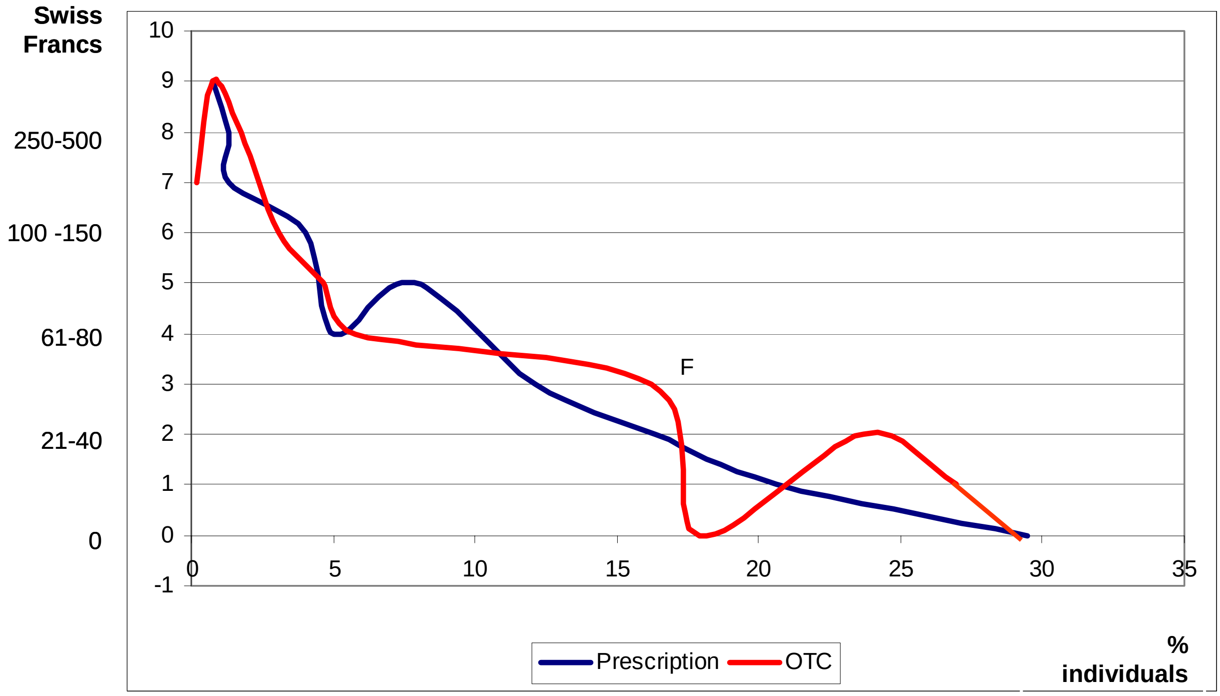


Table 1: Description of the population

	Lay people (N = 534)				Lay people + health care professionals (N=1594)			
		Information level				Information		
		Basic	Extended	P*		Basic	Extended	P*
Male (%)	60.2%	61.0%	59.5%	0.9	33.6%	38.0%	39.1%	0.7
Age (mean, std)	31.95±13.4	31.78	32.11	0.8	35.4 ±12.1	35.5	35.4	0.7
Primary school (%)	12.0%	11.7%	12.3%	0.9	6.4%	6.5%	6.3%	0.4
High school (%)	12.8%	14.0%	11.5%	0.4	10.6%	11.3%	10.0%	0.4
Apprenticeship (%)	45.2%	42.8%	47.6%	0.3	49.7%	50.0%	49.5%	0.8
University degree (%)	26.3%	28.0%	24.5%	0.4	32.5%	32.0%	33.5%	0.4
Employed (%)	80.9%	79.2%	82.5%	0.4	90.3%	90.1%	90.4%	0.6
Senior Health care professional (%)					14.5%	13.1%	16.0%	0.1
Non senior Health care professional (%)					52.0%	53.5%	50.6%	0.1
Supplementary insurance (%)	44.3%	45.5%	43.1%	0.7	49.4%	48.4%	51.4%	0.4
Good/Very Good subjective health status (%)	64.4%	65.9%	62.8%	0.5	74.0%	74.4%	73.8%	0.8
Suffering from chronic disease (%)	9.0%	9.9%	8.2%	0.6	7.3%	7.0%	7.6%	0.6
Affected by influenza during the previous two years	34.7%	36.4%	33.1%	0.4	27.6%	28.6%	26.5%	0.2
Vaccinated against influenza (%)	14.6%	16.7%	12.6%	0.2	29.9%	29.9%	29.6%	0.9
Questionnaire administered during winter time (%)	42.0%	41.3%	42.8%	0.7	56.2%	55.9%	56.4%	0.8
Basic information level (%)	49.5%				49.5%			

*basic vs extended (Khi 2 test for qualitative variables and student for continuous variables)

Table 2: Random-effects interval regression estimations and random-effects probit model over the full range of responses

	Lay people				Lay people + Health Care Professionals			
	random-effects interval regression		random-effects probit model		random-effects interval regression		random-effects probit model	
	Coef	p	Coef	p	Coef	p	Coef	p
OTC scenario	0.29	0.03	0.86	<0.01	0.26	0.02	0.92	<0.01
Basic information in the prescription scenario	-0.31	0.14	-0.32	0.19	-0.12	0.36	-0.23	0.16
Basic information in the OTC scenario	-0.39	0.04	-0.43	0.04	-0.22	0.04	-0.41	0.02
Ascending ranges in the prescription scenario	-0.27	0.20	-0.17	0.50	-0.16	0.22	-0.03	0.86
Ascending ranges in the OTC scenario	-0.18	0.39	-0.23	0.39	0.03	0.79	0.13	0.47
Questionnaire administered during winter time	0.42	0.09	0.42	0.12	0.37	<0.01	0.40	0.02
Male gender	0.42	0.29	0.34	0.22	0.05	0.73	0.11	0.56
Age (<24, (25,64), >65)	-0.06	0.05	-0.36	0.05	-0.43	<0.01	-0.77	<0.01
High school*	0.68	0.06	0.62	0.07	0.88	<0.01	0.78	0.04
Apprenticeship*	0.68	0.04	0.67	0.06	0.73	<0.01	0.73	0.02
University degree*	0.58	0.05	0.44	0.05	0.96	<0.01	0.80	0.02
Employed	0.10	0.73	-0.04	0.90	0.27	0.243	0.16	0.57
Senior health care professional in the OTC scenario**					-0.32	0.16	-0.79	0.20
Non Senior health care professional in the OTC scenario**					-0.70	<0.01	-0.40	0.01
Senior health care professional ** in the prescription scenario**					-0.67	<0.01	-0.73	<0.01
Non senior health care professional in the prescription scenario**					-0.70	<0.01	-0.54	0.02
Supplementary insurance	0.06	0.77	0.02	0.93	-0.02	0.84	-0.16	0.28
Good/Very Good subjective health status	-0.25	0.26	-0.41	0.11	-0.15	0.30	-0.15	0.41
Suffering from chronic disease	0.27	0.44	-0.06	0.89	0.23	0.35	-0.06	0.85
Affected by influenza during the previous two years	0.06	0.15	0.18	0.16	0.24	0.08	0.31	0.07
Vaccinated against influenza	0.48	0.05	0.37	0.04	0.58	<0.01	0.57	<0.01
constant	1.40	0.02	1.27	0.06	1.79	<0.01	1.71	<0.01
sigma_u	1.89		1.68		2.02		2.16	
rho	0.76	***	0.74	***	0.72	***	0.82	***

* primary schooling = reference , ** lay people = reference

*** significant based on the likelihood-ratio test of rho=0

Table 3: Interval regression estimations performed on the difference between the WTP in the prescription and OTC scenarios

	Coef	p
Limited information	0.13	0.02
Ascending ranges	-0.19	0.02
Questionnaire administered during winter time	0.10	0.39
Male gender	-0.08	0.49
Age (<24, (25,64), >65)	-0.05	0.57
High school*	-0.21	0.08
Apprenticeship*	-0.23	0.02
University degree*	-0.10	0.02
Basis + supplementary insurance	0.06	0.62
Good/Very Good subjective health status	-0.02	0.83
Suffering from chronic disease	0.19	0.03
Vaccinated against influenza	-0.03	0.85
Affected by influenza during the past 2 years	0.27	0.01
constant	0.20	0.02

* primary schooling = reference

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