

« Tell me what you think about intellectual property, I will tell you who you are »

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Abstract. This paper analyses experimentally the link between social preferences of individuals and how they justify the existence of intellectual property, with a specific focus on the utilitarian vs. the deontological justification. For that purpose, we implement an original protocol at the interface between two types of literature: the first one, well established, relative to social preferences; the other one, in emergence, trying to capture the different justifications for intellectual property. Our experiment shows two results : utilitarian subjects seem to change their conception of social justice when they have to make choices about intellectual property, which challenges the utilitarian justification for intellectual property ; 2) Rawlsian subjects are perfectly coherent with the deontological approach of intellectual property as they give priority to the rights of authors and inventors while minimizing the inequalities that could arise from these rights in choosing, for example, a shorter length.

JEL Codes: C 91 ; D 63 ; O34

Key-words. Social preferences, experimental economics, Rawls, intellectual property

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1. Introduction

The standard economic analysis justifies the existence of the intellectual property through the economic incentive argument (Arrow, 1962). Indeed, immaterial goods partly meet with the features of public goods producing market failure that intellectual property aims to fix. In increasing the incentives for invest in the production for immaterial goods, the intellectual property increase the production of such goods up to the optimal level. In this perspective, intellectual property is justified with regard to its consequences (in terms of incentives for creators, in terms of its effects on welfare etc.). Such reasoning is referred to as a consequentialist or a utilitarian justification (Merges, 2016) since intellectual property is legitimate only if it maximizes the total utility of the society.

However, this utilitarian justification for intellectual property is difficult to establish on empirical basis. Concerning patents as well as copyright, researches over the last decades covering a large number of countries and sectors have not confirmed a clear relationship between intellectual property and incentive to innovate. These results have led some scholars to conclude that the utilitarian justification for intellectual property was «decidedly ambiguous» (Lemley 2015, p. 62). De Beer, who has done a meta-analysis of the different methodologies and studies scrutinizing the link between patents, copyrights and creative activities, provide a similar conclusion: «it is impossible to generalize, based on methodologies and data in existing industry reports, government studies, academic scholarship or any other literature, about the economic importance of IP [Intellectual Property]. None alone is fully capable of transparently, verifiably and rigorously answering the core policy questions: what is the importance of IP to the economy, and what is the evidence of IP's impact» (2016, p. 152). More recently, Williams has declared that there is a «no credible empirical evidence on the seemingly simple question of whether stronger patent rights – either longer patent terms or broader patent rights – encourage research investments [...]» (2017, p. 28).

The indeterminacy of the utilitarian theory has revived non-consequentialist justifications for intellectual property. Since the end of the 1980s, several academic works in law and philosophy have used deontological arguments through natural law philosophy, in particular from the work of John Locke. The plea of Merges in *Justifying Intellectual Property* (2011) in favor of the deontological justification for intellectual property is a very good example of that approach. In order to consolidate his argument Merges mobilizes the thought of Locke, but also Kant and Rawls. According to Merges, there is a “universal moral grammar” in favor of intellectual property. In his view, «IP rules rely on a set of moral judgments that are so common and pervasive that they are close to being universal» (Merges, 2016). Because the deontological approach is based on the idea of moral duty and the respect of procedures, this approach is able to reach stronger normative conclusions in favor of intellectual property than the utilitarian alternative. From a deontological viewpoint, intellectual property could be seen as something which is just, independently from its consequences.

This does not mean that such approach does not take into account consequences at all, it rather means that the consequential objectives pursued by individuals or the society must be

framed within just procedures. The theory of justice of John Rawls (1971) follows this reasoning and presents his work as an alternative to utilitarianism (1971, p. 3). This is why we will consider here his theory as the representative of the deontological approach against utilitarianism thanks to his famous principle of difference, also well known by economists as the maximin criterion.⁶ However, in order to provide a full account on this deontological approach in our study, we must recall that the Rawlsian theory of justice could be reduced to the maximin criterion: demonstrate an Rawlsian understanding of justice goes far beyond the choice of maximizing the gains of the worst-off individual but also includes a great concern to the procedures and to the fact that individuals are endowed with fundamental rights.

Obviously, these two main justifications for intellectual property (utilitarianism vs. deontology) are based on two opposite conceptions of social justice. In this paper we do not aim to provide new elements in favor of one conception against another. Our goal is to investigate further the link between, on one hand, conceptions of social justice and, on the other hand, the perception of intellectual property. In other words, we seek to identify in what extent the conception of social justice endorsed by individuals – that is to say their social preferences – can influence their position for or against intellectual property rights. This would allow us to reveal potential inconsistencies from individuals when they are faced to the question of intellectual property and to reexamine these conflicting justifications in the light of our results.

For that purpose, we adopt an experimental approach in mixing two types of scientific literature which were separated so far – the experimental literature analyzing social preferences, and the literature focusing on intellectual property – thanks to an original protocol. From one side, the stream of research on social preferences has already produced an abundant literature (for a recent synthesis see Cooper & Kegel, 2016). Social preferences echo the idea that individuals' choices are not only determined by their own well-being or gains, but they may also depend on the level of well-being or gains from others. Through many experimental settings, including the dictator game or the public good game, this literature has revealed several elements explaining why individuals' choices differ from the standard economic rationality: altruism, reciprocity, inequity aversion etc. (for a synthesis see Lewitt & List, 2007). Likewise, in several simple distribution games, the goal is to explain the preference of one individual for a distribution rather than another – the efficient distribution maximizing the collective gain, the distribution maximizing the gain of the worst off.... In these experiments, the individual is either considered as a “social architect”, his gain is not affected by his choice, or either blinded by a Rawlsian “veil of ignorance”, meaning that he does not know his role and therefore the gain that he will obtain once the choice for one distribution is made (Johansson-Stenman, Carlsson & Daruvala 2002, Carlsson, Gupta & Johansson-Stenmann 2003). We select this later experimental setting in our protocol. On the other side, the experimental literature concerning intellectual property issues is made of a fewer number of recent contributions which examine the validity of the incentive argument (Meloso 2009, Buchanan & Wilson 2014, Bruggemann et al. 2015, Engel & Kleine 2015), or

⁶ On the debate between Rawls and the economists, see, for example, d'Aspremont (1984), Edgren (1995) or Gharbi (2013).

scrutinize the perception that individuals can have on intellectual property in using questionnaires (Mandel et al. 2015ab, Fast et al. 2016). Our protocol is inspired by this second type of works.

Thanks to this experimental setting, we are able to analyze and question the link between social preferences of individuals and the way they justify the existence of the intellectual property. Our results show three main insights: 1) egalitarian subjects prefer a society without intellectual property, 2) utilitarian subjects seem to change their own conception of social justice when they are face to the question of the existence of intellectual property rights, challenging the utilitarian justification for such property; 3) the Rawlsian subjects are perfectly coherent with the deontological approach for intellectual property in giving priority to the rights of authors and inventors while minimizing inequalities that may arise from these rights by selecting a shorter duration for intellectual property.

The following section presents our experimental setting. The third section will expose the results. The fourth section will propose a discussion of our results and will offer few conclusive remarks.

2. Experimental setting

Our experimental setting aims to compare the social preferences of individuals with their vision of the intellectual property. For that purpose, we set an experimental protocol in three steps for 24 players. Mainly based on the simple distribution game of Engelmann and Strobel (2004), the first step aims to identify the conception of social justice endorsed by players in thanks to their preferences as expressed among three distributions: egalitarian (E), Rawlsian (R) and utilitarian (U). The 24 players are randomly gathered in 8 groups of 3 people and are successively faced to 4 matrices of distributions. Groups are renewed after each matrix so that players are not able to know the identity of the other members of the group and their decisions. These matrices are randomly displayed in order to avoid biases. An example of a matrix is displayed in the table 1.

Table 1. Example of a matrix of distribution from the step 1

	Society A	Society B	Society C
Player 1	21	28	15
Player 2	12	12	12
Player 3	7	4	6
Total	40	44	33

Then, if a player selects the society A, his choice will be identified as a Rawlsian one since the distribution A is the one which maximize the gain of the worst off (here, the player 3 receives 7 in the society A against 4 in B and 6 in C). If the player chooses the society B, his choice will be considered as an utilitarian one since he selects the distribution which maximizes the collective utility (meaning the total gain, indeed, the total gain of the society B

is 44 against 40 in A and 33 in B). Finally, if the player takes the society C, his choice will be considered as egalitarian one since the society C minimizes the gap between the gains among the three players.⁷ Subjects do not know their role in the society when they have to make a choice. Their role is randomly distributed and there is no indication about the probability to be the player 1, 2 or 3 in order to reproduce the famous “veil of ignorance” of John Rawls.

The second step of our protocol includes 4 matrices of distribution successively proposed to groups of three players changing every time. However, the matrices include now textual considerations about intellectual property. Subjects are asked to choose between two societies: the first one recognized intellectual property rights for the player “creator”, that is to say the player 3, who can make profit from his creative activities, while the second society does not recognize any intellectual property right for the player 3 despite his creative investment. An example of a matrix is displayed in the table 2.

Table 2. Example of a matrix of distribution from the step 2

	Society A	Society B
Player 1	6	11
Player 2	16	16
Player 3	20	19
Total	44	46
Remark	In this society, the player 3 author/inventor is protected by intellectual property rights.	In this society, there is no intellectual property. The player 3 author/inventor does not receive any legal protection for his works/inventions

Like the table 2, the three other matrices from the step 2 are designed so that the three types of subjects identified in the step 1 are supposed to favor the society without any intellectual property in order to remain consistent, in purely distributive terms, with their conception of social justice. Indeed, if subjects are totally insensitive to any deontological reasoning about intellectual property, then they have to select, with no exception, the society B as it is the most egalitarian one while maximizing the income of the worst-off (player 1) and the collective utility. On the contrary, individuals favoring the society A would demonstrate that they conduct a deontological reasoning about intellectual property, that is to say, a reasoning which is partly disconnected of its distributive consequences.

Our experimental setting is ended by a questionnaire about intellectual property. It includes, between other things, sociodemographic questions and control questions for risk

⁷ The society C meets the two usual definitions of equity: the first one, proposed by Fehr & Schmidt (1999), supposes that individuals disapprove the difference between their own gain and the gain of others; the second of Bolton & Ockenfels (2000) consider that the most equitable distribution for individuals is the one which minimizes the difference between their own gain and the average gain.

aversion. The gains for the players are distributed at the end of this third step as follow: one of the 8 matrices of distributions is randomly selected and the gain of each player made on this matrix is the final gain for the experiment (one point equal one euro).

3. Results

The experiment has been reproduced four times with 96 students from different disciplines of the University of Strasbourg in July 2018. The presentation of our results will be divided in two parts. First, we explain how we have categorized the subjects of the experiment between the Rawlsian, the utilitarian or the egalitarian conception of social justice thanks to their choices from the first step. Then, we consider the results from the second step of the experiment about subjects' choices for or against intellectual property. Finally, we determine in what extent individual social preferences persist when these preferences are confronted to the question of the existence of intellectual property.

In order to aggregate the information from the first step and to draw a consistent categorization of our subjects we use the Multiple Correspondence Analysis (MCA).⁸ The table 3 presents the result of the MCA categorization. It can be observed that the majority of the subjects have Rawlsian social preferences (34,38%) or utilitarian social preferences (35,42%), while a few proportion of them are egalitarian (18,75%). However, despite the MCA method, it remains 11 uncategorized subjects put in the column "others". For this group, the MCA method cannot discriminate between egalitarian preferences or Rawlsian preferences. We will come back on this group later.

Table 3. Subjects categorization according to their social preferences

	Egalitarians	Rawlsian	Utilitarian	Others
#	18	33	34	11
%	18,75%	34,38%	35,42	11,45%

Thanks to this categorization, we determine if social preferences revealed in the step 1 are correlated with choices made in step 2 by individuals about the existence of a legal regime for intellectual property. Table 4 shows all the decisions made by the subjects in favor of the society A, that is to say the society in which intellectual property is applied, for every matrix. We can observed that a greater proportion of Rawlsians (50.7%) and utilitarians (47.8%) have chosen the society A. Only 41.7% of those who have been classified as egalitarian have chosen this society and only 34.1% for the "others" category. This result is coherent with the choices observed for each individual decision, excepted for the "others" category. Indeed, because of the very few number of subjects included in this category, it is hard to draw any conclusion about them (in particular, the fact that only one individual from this category have chosen the society with intellectual property for the second matrix of distribution).

⁸ The details of the methodology are provided in the appendix.

Table 4. Choices in favor of the society A with intellectual property

<i>Choice for the society A</i>	Egalitarians	Rawlsians	Utilitarians	Others
Total	30	67	65	15
(%)	(41,67)	(50,8)	(47,8)	(34,1)
Matrix 1	8	15	18	4
(%)	(44,5)	(45,5)	(52,9)	(36,4)
Matrix 2	10	20	18	1
(%)	(55,6)	(60,6)	(52,9)	(9,1)
Matrix 3	7	19	13	5
(%)	(38,9)	(57,6)	(38,2)	(45,5)
Matrix 4	5	13	16	5
(%)	(27,8)	(39,4)	(47,1)	(45,5)

Table 5 shows the results of the Mann-Whitney test of the difference of choices between our four categories of subjects. We do not observe significant differences between their choices. Regarding the category “others”, which includes undetermined subjects between egalitarian and Rawlsian preferences, the non-parametric tests show that there is no difference with egalitarian subjects but with Rawlsians. This would tend to put this “others” category in the egalitarian group.

Table 5. Mann Whitney test of difference of choices by subjects category

<i>Choice for the society A</i>	Rawlsians	Utilitarians	Others
Egalitarians	-1.239 (0,2152)	-0,842 (0,3998)	0,809 (0,4185)
Rawlsians	-	0,484 (0,6282)	-1,914 (0,0556)
Utilitarians	-	-	-1.586 (0,1128)

Note: Statistic of Z test and the p-value are showed in parenthesis.

These first results do not draw any conclusion about a specific attitude about intellectual property according to our subjects' categorization. However, these results do not take into account the heterogeneity of our population that might have a role for explaining choices.

We push the analysis a step forward with a regression of the choices for the society A or B in controlling for a set of potential explanatory factors. Table 6 shows the result of two types of regression. The first analysis explained the number of times for which the subjects have chosen the society protecting intellectual property with a linear regression for the four decisions made in the step 2 of our experiment. Then, we conduct a probit regression for analyzing potential explanatory factors in adjusting for standard deviations in order to take into account the repetition of our observations for the same subject. The explanatory variables for each regression are their conception of social justice such as captured in step 1, age, sex, the academic discipline they study, political preferences, auto-declared preferences for risk and controls related to their own appreciation of intellectual property issues (for example, does the subject download illegal contents, does the subject consider the current intellectual property length adequate?).

Table 6. Regression analysis of the choices

Dependent variables:	MCO	Probit
	# of choices A	choices A
	(1)	(2)
<i>Social preferences:</i>		
Constant (Egalitarian)	-0.790 (1.348)	-2.034*** (0.657)
Rawlsians	0.613** (0.270)	0.419*** (0.155)
Utilitarian	0.448* (0.268)	0.321** (0.159)
Others	0.023 (0.370)	0.024 (0.200)
<i>Demographic characteristics:</i>		
Age	0.049** (0.023)	0.040*** (0.015)
Male	0.509** (0.219)	0.370** (0.150)
<i>Questions about IP :</i>		
Q2 : « Is IP justified ? »	0.671 (0.436)	0.463*** (0.152)
Q1 : « For longer IP duration »	-0.212**	-0.145***

	(0.089)	(0.052)
N	96	384

Notes: Standard deviations are shown in parenthesis. Regression control for the academic discipline, political preferences as stated at the end of the experiment, auto-declared risk preferences expressed in binaries variables and they include also a control about whether the subject has already downloaded protected contents illegally. Standard deviations for probit regressions are adjusted by cluster in order to take into account the repetition of our observations for each subject.

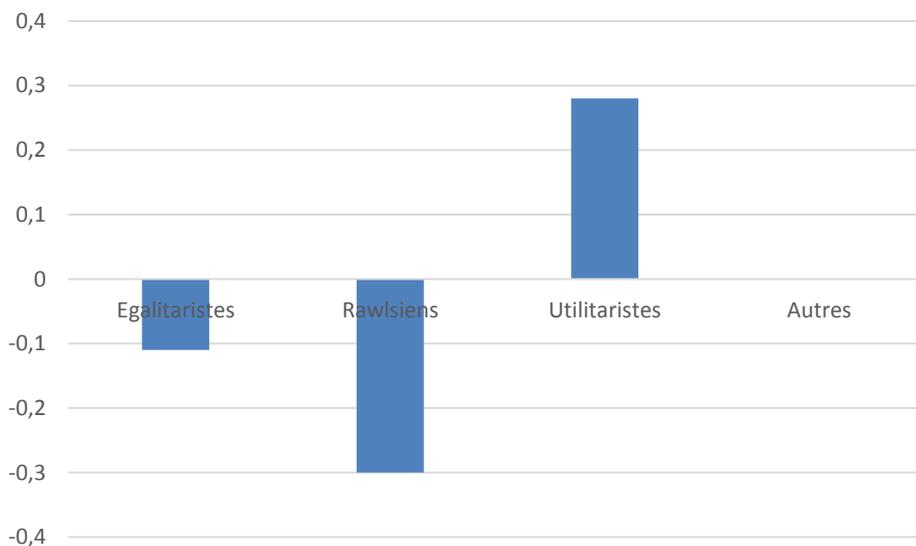
The result of the table 6 shows that the number of choices in favor of the society with intellectual property is significantly higher for Rawlsian subjects. The effect is also marginally significant for utilitarians. The probability to choose the society with intellectual property is higher for both Rawlsians and utilitarians. There is no difference between egalitarian subjects and “others” for both (1) and (2) analysis.

Further interesting results can be drawn from this table. First, we observe that there is a significant link between being older and to be in favor of intellectual property which complies with the results of Mandel (2015ab). Moreover, we can also observe that men are more in favor of intellectual property than women. Though not displayed in the table 6⁹, subjects having declared a high level of preference for risk (meaning higher than 5 in a scale from 0 to 10), are more in favor of intellectual property. However, by contrast to the work of Mandel, there is no significant link between political orientation or academic discipline and to be in favor of intellectual property.

The most interesting control variable for our research question is the one about the length of intellectual property (Q1). It has been asked to subjects to note on a scale from -2 to +2 their preference for a shorter or a longer intellectual property in comparison with the current duration, the value of 0 corresponding to the *statu quo*. Results show a significant relationship between preferring a shorter intellectual property length and being in favor of intellectual property. Interestingly, this result is driven by Rawlsians as showed in the figure 1. In other words, Rawlsian subjects, those who are expressing the stronger preference for intellectual property, are also those who are expressing a clear preference for a shorter intellectual property. The Mann-Whitney test confirms this result in showing that the answers from Rawlsian subjects are significantly different from the answers provided by utilitarian subjects to the question Q1 (cf. table appendix 3).

⁹ See appendix 2 for full results.

Figure 1. Appreciation of the length of the intellectual property by subjects' category ranking on a scale from -2 to +2 (Question Q1)



4. Discussion and conclusion

In this paper, we have faced social preferences of individuals with their position in favor or in disfavor of intellectual property. For that purpose, we set an original experimental protocol gathering two streams of literature: the first one, well-established, about intellectual preferences, the other one, in emergence, trying to test the incentive function of intellectual property and its perception by subjects. Finally, our research shows that there is strong correlations between conceptions of social justice endorsed by subjects and their own position in favor or in disfavor of intellectual property:

- Egalitarian subjects prefer the society without intellectual property, which is indeed the least equitable society according to the Fehr & Schmidt (1999) as well as Bolton & Ockenfels (2000) criteria.
- Utilitarian subjects prefer the society with intellectual property although this society does not maximize the total gain.
- Rawlsian subjects prefer, even more than utilitarians, the society with intellectual property while this society does not maximize the gain of the worst-off player. Moreover, Rawlsian subjects favor shorter intellectual property duration.

Two results in particular must be emphasized: concerning utilitarians, if we put aside the idea that they are totally incoherent, our results show that they change their conception as soon as the question of the existence of intellectual property is at stake. This would mean that utilitarian subjects would implement a procedural reasoning rather than a consequential one when they are faced to intellectual property issues. In other words, the utilitarian justification for intellectual property would not be sustainable.

However, our results provide a striking justification of intellectual property in deontological terms, as Rawlsian subjects give priority of the rights of authors and inventors while willing to minimize inequalities that could result from these rights in favoring short

intellectual property length. Indeed, as said in introduction, the deontological approach – which is, here, illustrated by the Rawlsian theory – gives priority to the respect of rules before considering their consequences. In our experiment, Rawlsians do not favor the society without intellectual property – while it maximizes the gain of the worst-off – but the society respecting rights of creators. In compliance with the deontological justification for intellectual property, Rawlsian subjects prioritize the respect of rules protecting inventors and authors over economic consequences. Nevertheless, Rawlsians express a significant preference for a shorter intellectual property regime, showing that they also pay attention to the consequences, or, in other words, to the effectivity of the related rules and rights of others.

This paper, first of its kind to our knowledge, could be pushed further in many ways. For example, an experimental game asking individuals to perform innovating tasks requiring actual effort could tell us more about their pro/anti attitude for intellectual property. In any case, we think that our results already have strong implications. In particular, our results show that there are many ways for justifying intellectual property, some being more “economic” than others. The coexistence of these competing justifications offers a potential explanation for the many past and current controversies about intellectual property issues.

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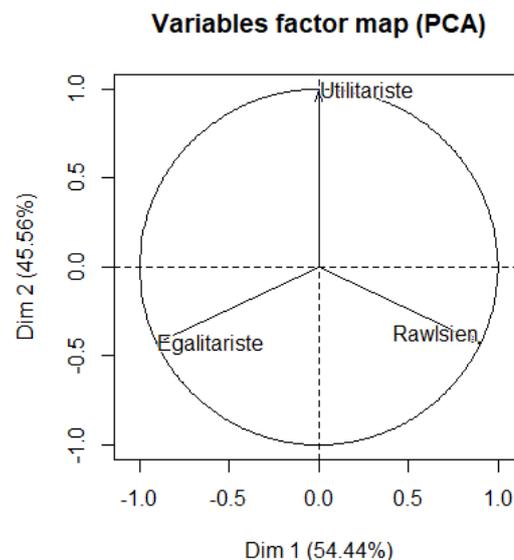
Annex 1 : Multiple Correspondence Analysis

In order to analyze the impact of social preferences expressed by subjects on their attitude about intellectual property we need first to classify them according to their choices in the step 1 of the experiment. For that purpose, we use the MCA by identifying first 14 types on the basis of the choices of the 4 matrices from the step 1. For example, a first type would be the one who have chosen 0 egalitarian society, 2 Rawlsian societies and 2 utilitarian societies. Then, these answers have been reduced centered. The results are displayed in the table and the figure above:

Tableau A1. Dimensions de l'ACM et valeurs propres.

	Valeur propre	Variance (pourcentage)	Variance cumulative (pourcentage)
Dimension 1	1.63e+00	5.44e+01	54.44
Dimension 2	1.37e+00	4.56e+01	100.00000
Dimension 3	5.42e-20	1.81e-18	100.00000

Fig. A1 Correlation graphic circle



We see first that the eigenvalues of the first dimension and the second dimension are >1 , which involves that our main components produce a good image of variances. The third dimension brings no additional information (its eigenvalue tends toward 0).

With these two dimensions, the MCA allows us to categorize partially the different behaviors of our subjects. The results are displayed in the figure and the table A2:

Fig A2. Comportements types et dimensions de l'ACM.

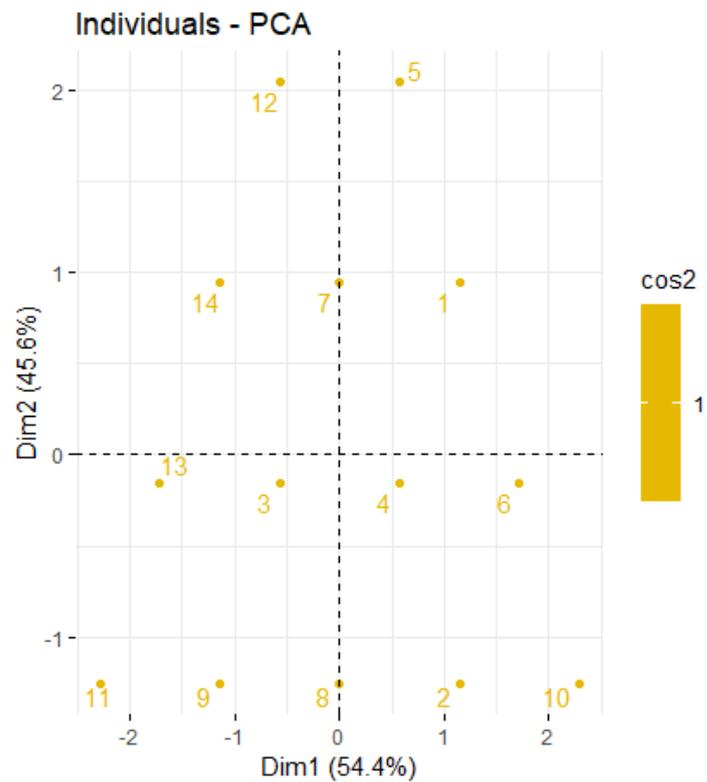


Tableau A2. Individual types (reduced-centered) after the implementation of the MCA method

Comportement	Égalitariste	Rawlsien	Utilitariste	Conclusion
1	-1,1127	0,4451	0,7796	Utilitariste
2	-0,3338	1,2240	-1,0395	Rawlsien
3	0,4451	-0,3338	-0,1299	Égalitariste
4	-0,3338	0,4451	-0,1299	Rawlsien
5	-1,1127	-0,3338	1,6892	Utilitariste
6	-1,1127	1,2240	-0,1299	Rawlsien
7	-0,3338	-0,3338	0,7796	Utilitariste
8	0,4451	0,4451	-1,0395	Indéterminé
9	1,2240	-0,3338	-1,0395	Égalitariste
10	-1,1127	2,0029	-1,0395	Rawlsien

11	2,0029	-1,1127	-1,0395	Égalitariste
12	-0,3338	-1,1127	1,6892	Utilitariste
13	1,2240	-1,1127	-0,1299	Égalitariste
14	0,4451	-1,1127	0,7796	Utilitariste

Thus, the type 8 is the only one who remained undetermined with the MCA method. This type can be considered both Rawlsian and egalitarian.

Annex 2 : Regressions

Variables dépendantes :	MCO	Probit
	# de choix A (1)	Choix A (2)
<i>Préférences sociales :</i>		
Constante (Egalitaristes)	-0.790 (1.348)	-2.034*** (0.657)
Rawlsiens	0.613** (0.270)	0.419*** (0.155)
Utilitaristes	0.448* (0.268)	0.321** (0.159)
Autres	0.023 (0.370)	0.024 (0.200)
<i>Caractéristiques démographiques:</i>		
Age	0.049** (0.023)	0.040*** (0.015)
Male	0.509** (0.219)	0.370** (0.150)
Orientation politique à droite	-0,000 (0,005)	-0,000 (0,003)
<i>Préférences pour le risque</i>		
<i>Éviter le risque (niveau 0) à chercher le risque (niveau 10)</i>		

Niveau 1	0.145 (1.114)	0.066 (0.369)
Niveau 2	0.357 (1.005)	0.241 (0.179)
Niveau 3	0.768 (0.979)	0.496** (0.250)
Niveau 4	0.239 (0.976)	0.133 (0.338)
Niveau 5	0.641 (1.020)	0.421 (0.292)
Niveau 6	1.388 (0.953)	0.921*** (0.242)
Niveau 7	0.777 (0.960)	0.526** (0.234)
Niveau 8	1.032 (0.954)	0.673*** (0.207)
Niveau 9	1.027 (1.057)	0.681** (0.312)
Niveau 10	1.209 (1.055)	0.784** (0.316)

Questions relatives à la PI :

Q5 : « Déjà téléchargé illégalement »	-0.027 (0.267)	-0.038 (0.155)
Q2 : « La PI est justifiée »	0.671 (0.436)	0.463*** (0.152)
Q1 : « Durée de la PI + longue »	-0.212** (0.089)	-0.145*** (0.052)

N

96

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Annexe 3 : Mann Whitney bilateral test between utilitarian subjects and Rawlsian subjects to the Q1 question

Utilitaristes	368,000
Espérance	528,000
Variance (Utilitaristes)	5397,912
p-value (bilatérale)	0,031
Alpha	0,05

La p-value est calculée suivant une méthode exacte.