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# Culture, Privacy Conception and Privacy Concern: Evidence from Europe before PRISM

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## Abstract

This article analyses individuals' online privacy concerns between cultural country groups. We use a dataset of more than 14 000 Internet users collected by the European Union in 2010 in 26 EU countries. We use a probit model to examine the variables associated with the probability of being concerned about privacy, in order to draw policy and regulatory implications. The results show that women and poor people are more concerned than their counterparts. People who often use Internet are not privacy concerned. Privacy concerned people are those who have heard bad privacy experience in the media, through word of mouth or have acquaintance who have bad privacy experience. Trusting Internet company leads to no privacy concern. Individuals in hierarchical and competitive countries are privacy concerned and those in countries characterized by equality, cooperation, and favorable for change are not privacy concerned. And finally, having a large view of information considered as personal leads to be privacy concerned.

## 1. Introduction

Privacy is a multifaceted notion, encompassing personal autonomy, democratic participation, identity management and social coordination (Phillips, 2004). Privacy concern is the desire to keep personal information out of the hands of others (Westin, 1967).

Online privacy concerns have become a pressing issue for people in light of recent events (PRISM, NSA, Sony's data theft, etc.). Currently, online privacy regulation is being debated especially in Europe. Regulatory intervention responds to online privacy concerns, which vary across individuals. Then, it seems to be difficult to optimally design a uniform privacy regulation policy to address heterogeneous concerns. These heterogeneous concerns are mainly linked to different cultures, different privacy conception. The aim of this paper is to highlight the different dimensions (demographics, experience, culture, privacy conception, etc.) that affect online privacy concern in Europe.

According to Smith et al. (2011), many factors may be linked to an individual's online privacy concern. These factors include privacy experiences, privacy awareness, personality differences, demographic differences, and culture. Firstly and unsurprisingly, people that have been victims of personal information abuses have stronger privacy concerns (Smith et al., 1996). Secondly, individuals that are better informed about privacy practices by firms, and then aware of potential privacy risks, tend to be more concerned about privacy issues (Malhotra et al., 2004). Thirdly,

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individuals' personality, and especially social awareness, can affect privacy concern. According to Dinev and Hart (2006), individuals with high social awareness tend to follow developments of issues related to privacy more closely. Fourthly, several studies relate privacy concerns to demographics. They found that male, young, poor and less educated individuals are associated with weaker privacy concerns (Sheehan, 1999; Culnan and Armstrong, 1999). Finally, privacy concern appears to be linked to culture. The impact of culture on privacy have been widely underlined, but few studies really address this issue. Most of them analyse the relationship between culture and privacy concern focusing on cultural variables separately at the country level, when focusing on the individual level no quantitative studies were done, only qualitative ones could be found (Miltgen and Guillard, 2014). Moreover, even if technical and financial constraints still exist, online privacy concern has become the most prominent impediment factor of Internet service diffusion in many countries.<sup>3</sup> This growing concern can have indeed real economic consequences for e-commerce. Although online privacy risks are relatively global due to/given the wide spread of this technology, perceived privacy concerns vary significantly among countries, and especially among European countries (Cecere et al., 2015). According to the literature, those variations are due to direct relationships between countries' cultural values and people's level of online privacy concern. The link between privacy conception and privacy concern is also interesting since privacy conception by individuals is not the same from a group to another according to their perception (Westin, 2003).

The literature shows that many factors can be linked to privacy concern. However, most papers only focus on one of these factors. In this paper, we propose to include these multiple factors. The research question in this paper is: what factors can be linked to privacy concern? In our analysis, we rely on Hofstede (2001) and Privacy International index respectively for cultural and privacy regulation measures. Using a European dataset including more than 14,000 internet users from 26 European countries in 2010, we investigate the relationship between individual's characteristics, contextual characteristics, privacy conception and culture on the one hand and their privacy concern on the other hand using a probit model. Our measure of online privacy concern is based on Milberg et al. (1995).

We find that women are more privacy concerned than men, poor are more concerned about privacy than their counterpart. We also show that more internet use is negatively linked to privacy concern. Privacy concerned people are those who have heard bad privacy experience in the media, through word of mouth or have acquaintance who have bad privacy experience. Trusting Internet company leads to no privacy concern. Regarding culture, Individuals in countries with high PDI and MAS and low UAI are more privacy concerned. With respect to privacy conception, having a large view of information considered as personal leads to be privacy concerned.

This paper is structured as follow. The first section provides a review of the literature and presents the hypotheses. Section 2 discusses the descriptive statistics. Section 3 describes the empirical models and section 4 presents the results and discussion.

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<sup>3</sup> See Credoc (2015) for France, Pew survey (XXX) for US, etc.

## 2. Literature review and hypotheses

Internet use is increasing leading to a huge diffusion of personal data. Individuals' concerns about online privacy become a main research question. Personal information privacy is becoming one of the most critical issues in information-saturated society (Milberg et al., 1995). Many Internet users who have never made an online purchase identify privacy concerns as a key reason for their inaction (Infocomm Development Authority, 2004) meaning that a high level of concern have negative consequences for the broadscale adoption of the internet and e-commerce. Moreover, since more companies and organizations become global, it is obvious that online privacy concerns extend beyond a single national culture (Milberg et al., 1995). However, few works focused on multinational or cross-cultural issues related to online privacy concern, most of them have been confined to a national scale. In fact, in the literature, most of the works analyse small sample from single countries and use a small number of explanatory variables. In this paper, we use individual, contextual and cultural explanatory variables using a large sample including 26 european countries. We focus on cultural groups using Hofstede measures and another variable not treated in the literature: privacy conception since research has shown that individual perceptions and values affect privacy concern (Buchanan et al., 2006; Joinson et al., 2006). Groups of privacy conception were measured according to the degree of considering information as personal.

### 2.1. Privacy Concern: individual and contextual factors

#### 2.1.1. *Individual factors*

Concerning demographics, several study focus on the link between gender, age, and educational level and concerns about online privacy. Cho et al. (2009) show that individual differences (age, gender and internet experience) significantly influenced internet users' privacy concerns, female and older internet users were more concerned about online privacy than their counterparts. Poor seem to be less concerned about privacy (Culnan, 1993). Sheehan (1999) focus on gender differences in online privacy concerns using a survey of 889 internet users nationwide and show that women generally appearing more concerned about the effect of the practice on their personal privacy. Females tend to be less risk-taking and trusting than males in various social setting, including online shopping (Rodgers and Harris, 2003). Moreover, older people are more concerned about online privacy since they become more sensitive to potential privacy problems (Bellman et al., 2004; Culnan, 1993). Miltgen and Guillard (2014) used a qualitative survey in 7 european member states to examine generational divide concerning privacy concern. Results to show that young people express fewer privacy concerns than adults. Younger people express more positive attitudes toward data management, feel more responsible, and are more confident in their ability to prevent possible data misuse.

With regards to Internet use, more Internet use may lead to increasing skills of Internet use leading to less concern about privacy. Lohse et al. (2000) using a sample of US consumers, found

that sensitivity to privacy issues online decreases with Internet use. Bellman et al. (2004) measured Internet use with length and frequency of use and reported that internet users' concerns about online privacy diminished with internet use. On the one hand, the suggestion is that online privacy concerns should fall gradually as the average level of internet use rises (Bellman et al., 2004; Consumer Internet Barometer, 2003). On the other hand, Singh and Hill (2003) found the opposite: experienced and knowledgeable internet users were more concerned about online privacy and less likely to shop online. Singh and Hill reasoned that increased expertise might make consumers more cautious about internet usage, since they were more aware of how their data could be collected and used without permission.

Several studies also examined the relationship between individuals' bad experience with internet use and privacy concerns. Chen et al. (2017) identified the antecedents of being an Internet scam victim and how it impacts online privacy concerns and privacy protection behaviors. Using a survey of 11,534 Internet users and a structural equation modeling, the authors show that being an Internet scam victim predicted increased online privacy concerns. Smith et al. (1996) found that individuals who have been exposed to or been the victim of personal information abuses should have stronger concerns regarding information privacy.

H1: Individual factors may be linked to Privacy Concern.

H1.1: Female are more concerned about Privacy.

H1.2: Older people are more concerned about Privacy.

H1.3: Employed people are concerned about their Privacy.

H1.4: More Internet use is negatively linked to Privacy Concern.

H1.5: Having no difficulties to pay bills is positively linked to Privacy Concern.

H1.6: Living in a large town is positively linked to Privacy concern.

H1.8: Having bad Privacy Experience is positively linked to Privacy Concern.

### *2.1.2. Contextual factors*

With regards to personal data control, according to Culnan (1993) consumers who were aware of name removal procedures for "opting out" of direct mailing lists were less concerned about information privacy. Trust on company when perceiving a good reputation may decrease individual's' privacy concern (Miltgen and Guillard, 2014). Miltgen and Guillard (2014) using qualitative survey in 7 cities showed the importance of control and the absence of secure protection. According to them individuals clearly express a need for more efficient and secure regulations, they do not know how to ensure that their rights will be respected and often use self-protective measures such as not registering online. They also show that people are aware of the possibility of 'function creep', which leaves them anxious about how to ensure information elicited for one purpose is not used for other purposes. They consider personal data disclosure as a loss of control and even a breach of privacy. They are afraid of such intrusions, because they consider the risks of data misuse very high and a future threat therefore difficult to anticipate.

H2: Contextual factors are linked to Privacy Concern.

H2.1: Trust on Internet company is negatively linked to Privacy Concern.

H2.2: More Control is negatively linked to Privacy Concern.

H2.3: Being aware about the existence of a protection authority is positively linked to Privacy Concern.

## **2.2. Culture, Privacy Conception and Privacy Concern**

### ***2.2.1. Culture and Privacy Concern***

According to Hofstede (1980, 1991) national culture is defined as the collective mindset distinguishing the members of one nation from another. National culture influences a person's actions through cultural values, which valorize particular behaviours while discouraging others (Triandis, 1994). Human culture affects largely the way people think and behave (Hofstede, 1980), and then their privacy concerns. In this study, culture is defined following Hofstede (1991) as "the collective programming of the mind distinguishing the members of one group or category of people from another".

Many researches, using Hofstede's four indices of national culture, have postulated that individuals' concerns with privacy can be influenced by their respective cultural values. Hofstede's four indices are: individualism (IND), power distance (PDI), uncertainty avoidance (UAI) and masculinity (MAS).

The IND refers to an individual's independence from organizations or collectivity. The PDI refers to the degree of inequality between a less powerful individual and a more powerful one. The UAI measures the extent to which a society feels threatened by uncertain and ambiguous situations and tries to avoid these situations. The MAS index refers to the extent to which a society values assertiveness, the acquisition of money and things and not caring for others, the quality of life or people.

People in individualistic cultures (IND) tend to be more concerned about online privacy. They tend to place more value on private life, while collectivistic societies accept more easily groups' and organizations' intrusion into the private life of an individual. Individuals in high IND countries would exhibit higher levels of concern for information privacy (Milberg et al., 1995, 2000). Concerning PDI, individuals in high PDI countries would be privacy concerned. In fact, a high score of PDI is associated with greater mistrust of more powerful groups. With respect to UAI, concern for privacy may be positively related to UAI (Milberg et al., 1995, 2000). Higher UAI is associated with high level of anxiety, stress and concern for security. Masculinity (MAS) would be negatively related to privacy concern. High MAS cultures place greater emphasis on material success, and perhaps the economic benefits of using private information over privacy control (Bellman et al., 2004).

Bellman et al. (2004) used a global survey of 534 internet users from 38 countries and three different methods to analyze the effects of cultural values: i) analyzing each Hofstede index separately; ii) analyzing the simultaneous effects of four Hofstede indices; and iii) analyzing the discrete effects of being high or low on the four Hofstede indices. They found that cultural values do have an influence on consumers' concerns about information privacy. Cho et al. (2009)

using a survey of 1261 internet users from five cities (Bengalore, Seoul, Singapoure, Sydney and New York) and Hofstede's culture measures show that nationality and national culture significantly influenced internet users' privacy concerns to the extent that individualistic internet users from an individualistic culture were more concerned about online privacy than their counterparts. Miltgen and Guillard (2014) also find that people from collectivist countries tend to exhibit less privacy concerns. The authors used a qualitative survey in 7 european member states.

In the literature, no works focused on a large sample of countries using quantitative data and differentiating groups of countries having cultural similarities. In this paper, we built groups of countries having cultural similarities using the Hofstede's indexes, in order to study privacy concerns of these different groups.

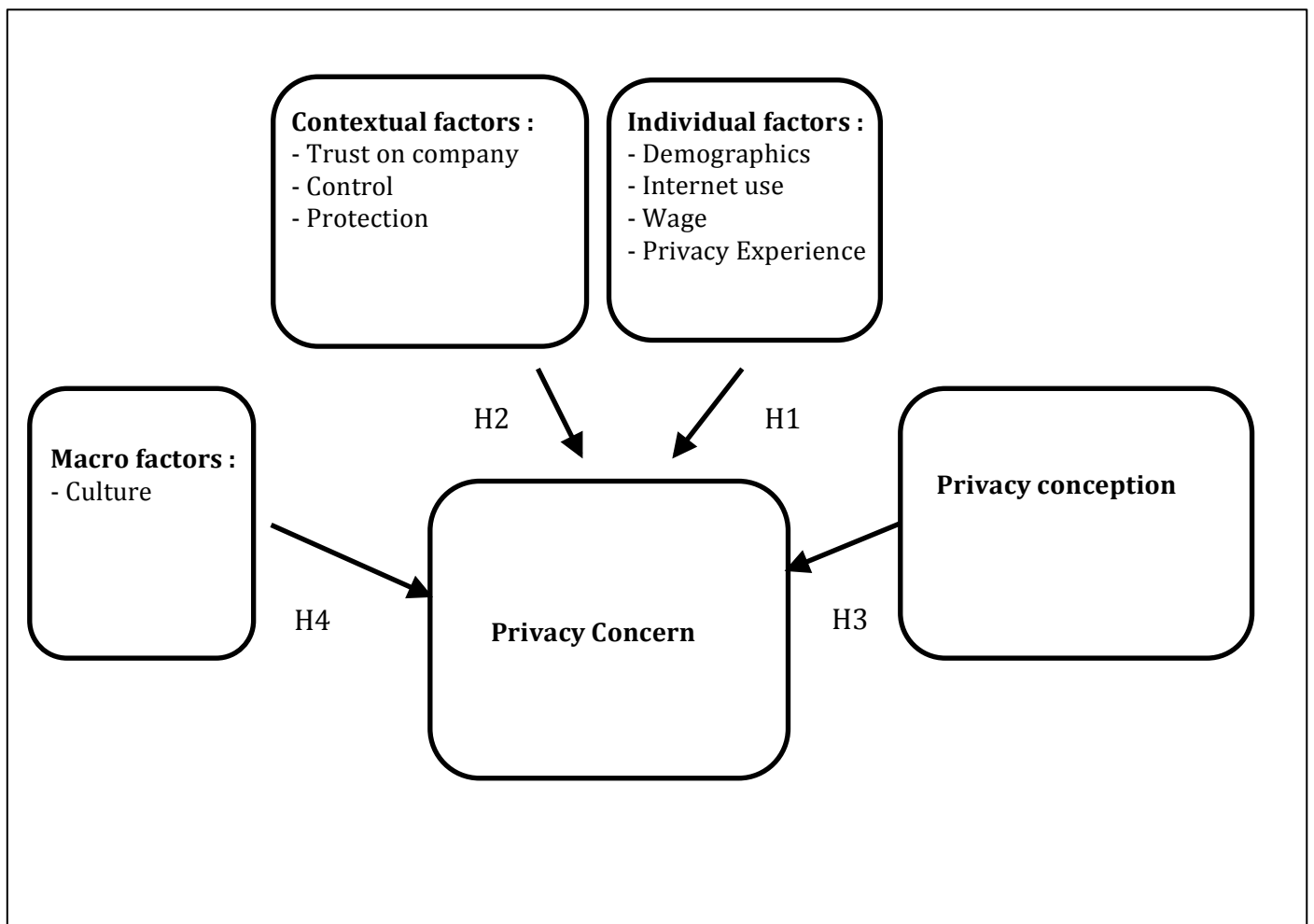
H3: IND, PDI, UAI and MAS are linked to Privacy Concern.

### *2.2.2. Privacy Conception and Privacy Concern*

Little literature focused on the conception of privacy. The interest on privacy concern did not include the privacy conception dimension as an explanatory variable like cultural determinants. In this paper, privacy conception is considered as explaining variable of privacy concern since individuals may feel more concerned when having a large privacy conception. Westin (2003) used three categories of consumer privacy issues: Privacy fundamentalists, privacy unconcerned and privacy pragmatics. Privacy fundamentalists are high-privacy oriented proponents. Privacy unconcerned are those who are ready to supply their personal information and reject what was seen as too much privacy fuss. Privacy pragmatics examine the benefits to them or society of the data collection and use, want to know the privacy risks and how organizations proposed to control those, and then decide whether to trust the organization or seek legal oversight. In this paper, based on this finding, we construct five privacy conception groups using 14 variables considered as personal by individuals. Privacy fundamentalists are those who consider all data as personal (group 5), privacy unconcerned are those who consider only medical, financial and ID number as personal data (group 1), and privacy pragmatics are the groups between fundamentalists and unconcerned (groups 2, 3 and 4).

H4: Individuals who consider much information as personal are privacy concerned.

Figure 1: The conceptual Model



### 3. Descriptive statistics

This article examines the variables associated with individuals' privacy concerns, emphasizing individual, contextual, cultural and conceptual factors in particular. The empirical study is based on an original dataset collected by EU. The survey is called Eurobarometer Special Survey n°359. Survey were conducted in November-December 2010, among 25 850 respondents representative of the European population. Additionally, we compiled data from multiple sources including Privacy International index and Hofstede's cultural index (computed in 2008) which permit for cross-country comparisons of respectively institutional protections and cultural value. We only used data relative to Internet users, so after data cleaning of Internet users, we obtained a dataset of 14 757 observations which covers 26 EU countries. In particular, we do not include Cyprus because Hofstede cultural data are not available for this country. We relied on the literature review to identify the key variables that can affect concerns over privacy and help to identify policy and managerial implications. Descriptive statistics are given in Table 1, 2 and 3 (see



appendix 4, 6 and 7).

Table 2 presents the descriptive statistics of the dependent variable and independent variables. The dependent variable, privacy concern, is a binary one, it takes 1 if the individual is privacy concerned and 0 otherwise.

With respect to demographics, age and gender measure respectively the age and gender (takes value 1 if individual is male and 0 otherwise). Job conditions are measured through the following variables: unemployed, self-employed and employed. Having difficulties to pay bills, having some difficulties and no difficulties are measured. These variables can also be considered a measure of income. A set of mutually exclusive binary variables indicates whether the individuals live in big towns, small towns or rural. The reference variable is big towns (To our knowledge, no other studies on this topic include these spatial considerations).

Privacy experience is measured by a multiple choice question “in the last 12 months, have you heard about or experienced issues in relation to data losses and identity theft?”. The variable is coded 0 if the answer is no. Different combinations of answers are given: no experience or heard, personal experience and heard, only heard acquaintance, only heard media and heard acquaintance and media.

With regards to Internet use frequency, “rarely”, “sometimes” and “every day” measure the frequency of Internet use and take the value 1 if yes and 0 otherwise.

Concerning contextual factors, “trust” takes the value 1 if the individual trust Internet company and 0 otherwise. “Control” measures privacy control by Internet user and goes from 0 to 9 according to the number of measures taken in order to protect privacy like: use a dummy email account, use anti-spy software, delete cookies, etc.

#### *Privacy conception*

In the first model, privacy conception is a sum of 14 variables and goes from 0 to 14, 0 if no information is considered as personal and 14 if all variables are considered as personal. In the second model, groups of privacy conception are constructed going from individuals in group 1 who consider few information as personal to group 5 who consider all information as personal (see appendix 7).

#### *Countries' cultural groups*

In order to take into account the different countries' cultural values, we perform data analysis in the aim of creating culturally homogenous groups of European countries. The Figure 2 (see appendix 1) shows the dendrogram generated with a hierarchical cluster analysis using Ward method on the four cultural dimensions of countries - individualism, power distance, masculinity and uncertainty avoidance - proposed by Hofstede (1980, 1991).

The four lowest values of Duda-Hart statistics are associated with the breakdown of EU countries into 7, 10, 12 or 13 groups (with respectively pseudo T-squared equal to 2.93, 2.27, 2.11 and 2.01). Splitting the 26 UE countries in 10 or more groups would lead to many groups composed of only one countries. We opt to breakdown the UE countries into 7 groups. We perform a Principal Component Analysis (PCA) with the four Hofstede cultural values used in

the clustering so as to better characterized each groups. The two first components of the PCA cumulated 80.3% of the EU countries inertia and give clear results. The first component axis is positively related to power distance and uncertainty avoidance, and negatively with individualism. the second component is positively correlated to masculinity (figure 3, appendix 2).

Figure 4 (see appendix 3) represents the 26 UE countries based on the 2 axis described before.

## 4. Econometric models

In this article, we focus on the determinants of online privacy concern. For this purpose, we use a European dataset in which persons are asked about their degree of concern about their online information on a 4-item scale. We create a dummy variable by merging very concerned and concerned answers (1) vs. unconcerned and very unconcerned answers (0). Using a Probit, we estimate the following model:

$$\Pr(\text{concerned}_i) = \alpha_i + \beta\text{Culture}_i + \beta\text{Conception}_i + \beta\text{Demographics}_i + \beta\text{Context}_i$$

The Culture variable the 7

## 5. Results

The results of the probit models are presented in Tables 4.

*Table 4: Probit models results*

Endogenous var.: online privacy concern (0/1)	<b>Model 1</b>		<b>Model 2</b>	
Group 4	ref.		ref.	
UEgroup7_Cult4_1	0.019	(0.034)	0.023	(0.034)
UEgroup7_Cult4_2	0.024	(0.043)	0.044	(0.043)
UEgroup7_Cult4_3	0.099*	(0.056)	0.113**	(0.056)
UEgroup7_Cult4_5	-0.061	(0.038)	-0.065*	(0.038)
UEgroup7_Cult4_6	-0.561***	(0.042)	-0.549***	(0.042)
UEgroup7_Cult4_7	-0.320***	(0.032)	-0.313***	(0.033)
Female	ref.		ref.	
Male=1 and Female=0	-0.042*	(0.022)	-0.053**	(0.022)

Age	0.011**	(0.004)	0.011***	(0.004)
age2	-0.000	(0.000)	-0.000	(0.000)
Employed	ref.		ref.	
selfempl	0.006	(0.039)	-0.002	(0.039)
unempl	-0.017	(0.027)	-0.024	(0.027)
No difficulties	ref.		ref.	
Some difficulties ~s	0.129***	(0.025)	0.129***	(0.025)
Difficulties to pa~s	0.146***	(0.039)	0.145***	(0.039)
Big town	ref.		ref.	
Living in a small town	0.013	(0.026)	0.005	(0.026)
Living in a rural area	0.015	(0.027)	0.007	(0.027)
Dummy = 1 if trust~c	-0.427***	(0.023)	-0.438***	(0.023)
control_sum	0.042***	(0.006)	0.049***	(0.006)
Being aware of the~	0.071***	(0.022)	0.072***	(0.022)
No experience/heard	ref.		ref.	
personal_andmore	0.082	(0.068)	0.087	(0.068)
only_heard_acquain	0.210***	(0.045)	0.207***	(0.045)
only_heard_media	0.028	(0.023)	0.036	(0.023)
media_acquaint	0.186***	(0.045)	0.194***	(0.045)
Internet use: rarely	ref.		ref.	
internetuse_someti~s	-0.017	(0.044)	-0.011	(0.044)
internetuse_always	-0.088**	(0.037)	-0.081**	(0.037)
Number of item men~P	0.029***	(0.003)		
Low privacy conception			ref.	
IndGroup5_2			0.066*	(0.040)
IndGroup5_3			0.216***	(0.042)
IndGroup5_4			0.214***	(0.046)

IndGroup5_5			0.354***	(0.052)
Constant	-0.403***	(0.105)	-0.372***	(0.109)
Observations	14757		14757	
Adjusted R-squared				
Pseudo R-squared	0.056		0.056	

Standard errors in parentheses

\* p<.10, \*\* p<.05, \*\*\* p<.01

Two models were used in order to measure the link between individual factors (gender, age, job position, wage, internet use, town, authority, privacy experience), contextual factors (trust on company, privacy control), culture and privacy concern on the one hand and privacy concern in the other hand. In the first model, privacy conception is considered as a quantitative variable and goes from 0 to 13. In the second model, groups of individual's privacy conception are constructed based on the level of information considered as personal.

In the two models, men are less concerned than women. The result is significant at 10% in the first model and 5% in the second one. Regarding job position, the results are not significant. Less paid individuals are more concerned than well paid ones. Living in large, middle or rural town has no link with privacy concern. With regards to privacy experience, individuals who have heard about issues in relation to data losses and identity theft through word of mouth and affected one of individuals' acquaintances (only\_heard\_acquaint) or heard through media and affected of acquaintances (media\_acquaint) are privacy concerned. Regarding Internet use, not privacy concerned individuals are those who always use Internet (internetuse\_always) comparing to those who rarely use it.

Regarding cultural groups, comparing to the fourth group, which is mediating group, individuals in group 3 (UEgroup7\_Cult4\_6 and UEgroup7\_Cult4\_7) are privacy concerned and group 6 and 7 are not privacy concerned. Group 3 is composed by Slovakia, which is hierarchical and competitive. Group 6 and 7 are characterized by equality, cooperation, and favorable for change. With respect to privacy conception, the two models show that a large view of privacy is positively and significantly linked to privacy concern. In the first model individuals who have a large privacy conception are privacy concerned. In the second model, with five privacy conception groups, individuals with higher privacy conception are privacy concerned.

## 6. Discussion and conclusion

Results show that women are more privacy concerned than men, H1.1 is then verified. Poor are more concerned about privacy, which verified H1.5. The negative link between Internet use and privacy concern verify the H1.4 more internet use lead to increasing skills of Internet use leading to less concern about privacy. Privacy concerned people are those who have a privacy experience through word of mouth and through affecting one of individuals' acquaintances or through media and affected of acquaintances. This confirms H1.8 and shows the importance of carrying out awareness campaigns in the media.

Being aware of the existence of a protection authority is positively linked to privacy concern. This could be explained by being afraid and not sure about the effectiveness of the authority since many online problems exist despite the existence of authority. This result goes with the H2.3. Individuals trusting Internet company are not privacy concerned. H2.1 is then confirmed. The risk of data misuse decreases with trust. Individuals having privacy control are privacy concerned which is not expected since more control should increase data control and then decrease privacy concern. This result could be explained by the fact that those people feeling having more control disclose more data and since personal data disclosure is considered as a loss of control, this may lead to individuals privacy concern. H2.3 is then not verified.

Regarding culture, results showed that hierarchical and competitive countries are privacy concerned and countries characterized by equality, cooperation, and favorable for change are not privacy concerned. This leads as to conclude that PDI and MAS are positively linked to privacy concern while UAI is negatively linked to privacy concern.

The positive result between privacy conception and privacy concern leads to conclude that having a large view of information considered as personal leads to be privacy concerned.

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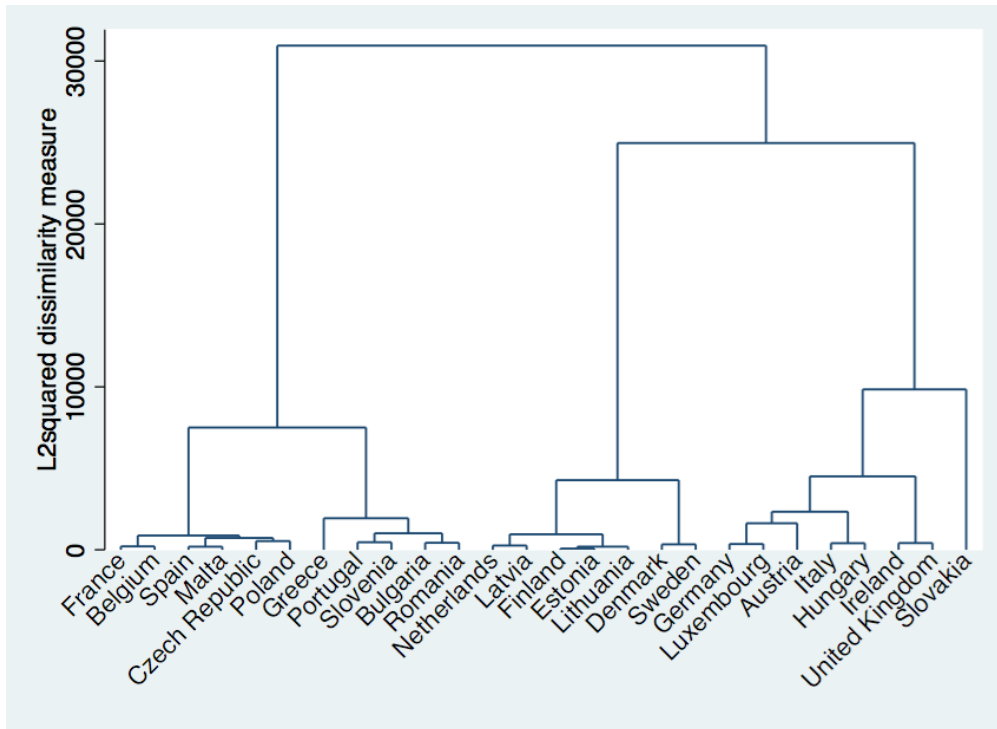
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# Appendix

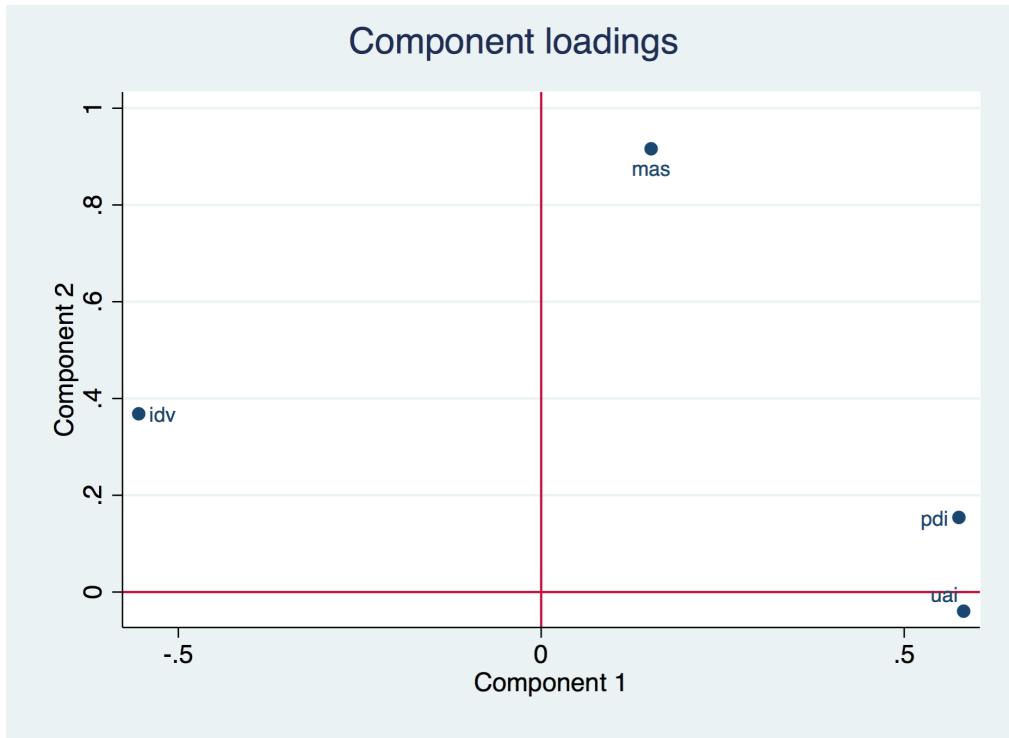
## Appendix 1

Figure 2 : Hierarchical cluster analysis using Ward method on cultural dimensions



## Appendix 2

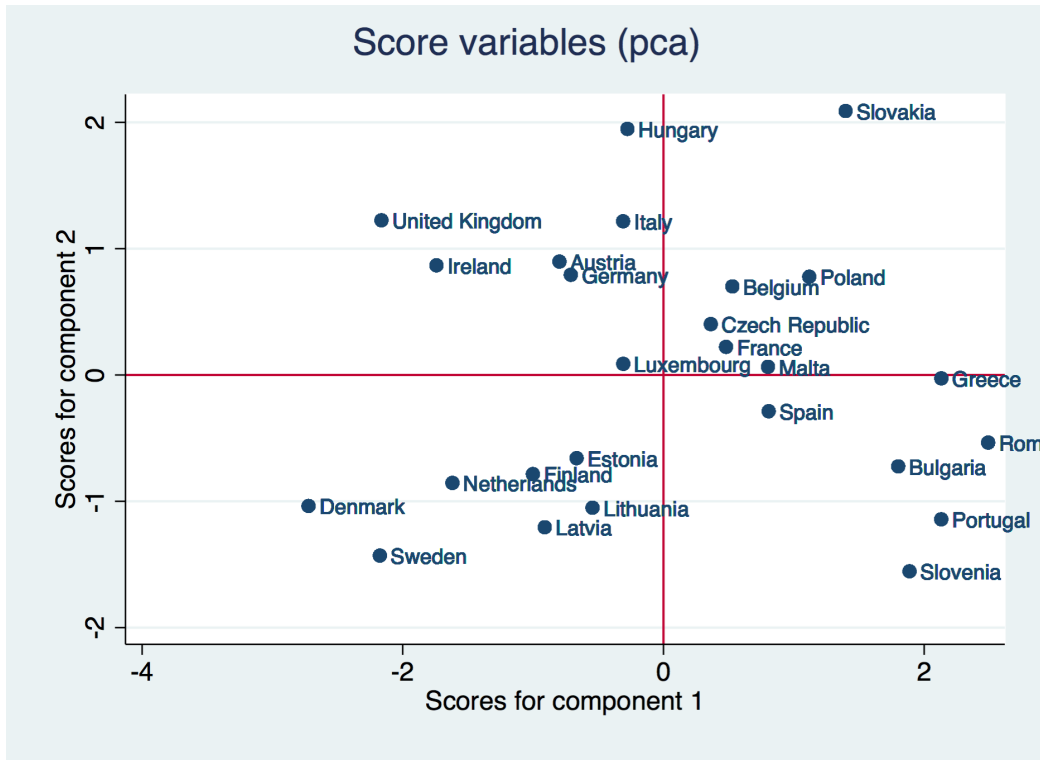
Figure 3: Principal component analysis with the four Hofstede cultural values





Appendix 3

Figure 4: The 26 UE countries according to PCA components



Appendix 4

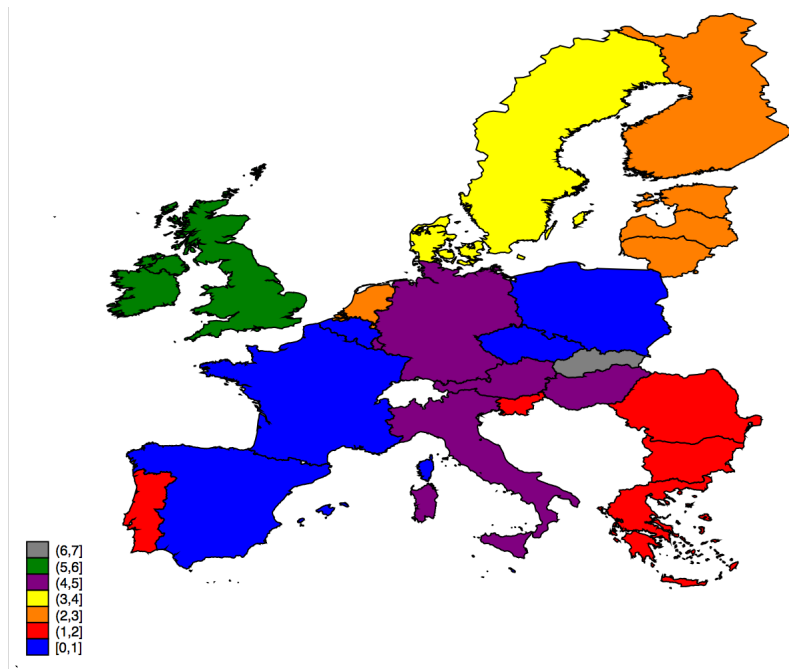
Table 1: Hofstede cultural variable by country

Group #	Country	Power distance	Individualism	Masculinity	Uncertainty Avoidance
1	Austria	11	55	79	70
	Germany	35	67	66	65
	Luxembourg	40	60	50	70
	Hungary	46	80	88	82
	Italy	50	76	70	75
2	Ireland	28	70	68	35
	UK	35	89	66	35
3	Slovakia	100	52	100	51

	France	68	71	43	86
	Belgium	65	75	54	94
4	Czech Rep.	57	58	57	74
REF	Poland	68	60	64	93
	Spain	57	51	42	86
	Malta	56	59	47	96
<hr/>					
	Bulgaria	70	30	40	85
	Romania	90	30	42	90
5	Slovenia	71	27	19	88
	Greece	60	35	57	112
	Portugal	63	27	31	104
<hr/>					
6	Denmark	18	74	16	23
	Sweden	31	71	5	29
<hr/>					
	Netherlands	38	80	14	53
	Finland	33	63	26	59
7	Estonia	40	60	30	60
	Latvia	44	70	9	63
	Lithuania	42	60	19	65
<hr/>					

## Appendix 5

Graphic 4: Maps of countries' cultural groups



## Appendix 6

Table 2: Descriptive statistics

Variable	Mean	Std Dev.	Min.	Max.
Endogenous var.				
<b>Online privacy concern</b>	0.487	.50	0	1
<b>Privacy conception</b>				
# of personal data	6.86	3.67	0	14
Group 1	0.087	0.28	0	1
Group 2	0.433	0.49	0	1
Group 3	0.244	0.42	0	1
Group 4	0.149	0.36	0	1
Group 5	0.087	0.28	0	1
<b>Individual factors</b>				
Demographics				
Gender	0.497	0.50	0	1
Age	41.1	15.6	15	93

Job position				
Employed	0.533	0.50	0	1
Self employed	0.087	0.28	0	1
Unemployed	0.379	0.49	0	1
Level of poverty				
No difficulties	0.619	0.49	0	1
Some difficulties	0.293	0.46	0	1
Difficulties	0.087	0.28	0	1
Living				
Big town	0.308	0.46	0	1
Small town	0.378	0.48	0	1
Rural	0.314	0.46	0	1
<hr/>				
Privacy Experience and awareness				
No experience or heard	0.367	0.48	0	1
Personal exp. and heard	0.026	0.16	0	1
Only heard acquaintance	0.064	0.24	0	1
Only heard media	0.389	0.49	0	1
Heard acquaint. and media	0.063	0.24	0	1
<hr/>				
Internet use frequency				
Rarely	0.101	0.30	0	1
Sometimes	0.754	0.43	0	1
Every day	0.146	0.35	0	1
<hr/>				
<b>Contextual factors</b>				
Trust	0.327	0.47	0	1
Control	2.34	1.87	0	9
<hr/>				
Observations	14,757			
<hr/>				

Appendix 7

Table 3: Privacy conception according to personal information

Group	Med.	Finger.	Fin.	Work	ID num.	Name	Address	Nation	Activ.	Opinions	Photos	Friends	Web	Mobile	# obs.
1	.81	.00	.79	0	.93	.11	.25	.04	.01	.00	.10	.01	.01	.36	1,288
2	.85	.78	.86	.19	.70	.19	.37	.06	.12	.19	.39	.12	.23	.50	6,384
3	.66	.65	.66	.30	.83	.82	.83	.42	.15	.10	.48	.24	.15	.54	3,601
4	.83	.67	.90	.39	.75	.24	.49	.15	.52	.53	.87	.86	.66	.65	2,202
5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1,282