Article

# A Multi-Technique Approach to Exploring the Main Influences of Information Exchange Monitoring Tolerance 

Daniel Homocianu (D)

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Department of Accounting, Business Information Systems, and Statistics, Faculty of Economics and Business Administration, Alexandru Ioan Cuza University, 700505 Iasi, Romania; daniel.homocianu@uaic.ro


#### Abstract

The privacy and security of online transactions and information exchange has always been a critical issue of e-commerce. However, there is a certain level of tolerance (a share of $36 \%$ ) when it comes to so-called governments' rights to monitor electronic mail messages and other information exchange as resulting from the answers of respondents from 51 countries in the latest wave (2017-2020) of the World Values Survey. Consequently, the purpose of this study is to discover the most significant influences associated with this type of tolerance and even causal relationships. The variables have been selected and analyzed in many rounds (Adaptive Boosting, LASSO, mixed-effects modeling, and different regressions) with the aid of a private cloud. The results confirmed most hypotheses regarding the overwhelming role of trust, public surveillance acceptance, and some attitudes indicating conscientiousness, altruistic behavior, and gender discrimination acceptance in models with good-to-excellent classification accuracy. A generated prediction nomogram included 10 ten most resilient influences. Another one contained only 5 of these 10 that acted more as determinants resisting reverse causality checks. In addition, some sociodemographic controls indicated significant variables afferent to the highest education level attained, settlement size, and marital status. The paper's novelty stands on many robust techniques supporting randomly and nonrandomly cross-validated and fully reproducible results based on a large amount and variety of evidence. The findings also represent a step forward in research related to privacy and security issues in e-commerce.


Keywords: tolerance for information exchange monitoring; World Values Survey (WVS); adaptive boosting; LASSO; Ordinary Least Squares (OLS); binary and ordered logit; mixed-effects modelling; reverse causality and collinearity checks; prediction nomograms; triangulation, cross-validation, and full support for replication of results

## 1. Introduction

The privacy issues and the tolerance level of information exchange monitoring (by governments) are relevant topics these days, even more so in the context of the latest advancements. These mainly concern Internet transactions, electronic commerce, and e-banking. The last two are principal components of e-government (Mishra et al., 2021 [1]).

Another part of this context refers to our needs, constantly recreated by the market. The latter is increasingly profiling and monitoring our lives (Gupta, 1995) [2] with the aid of social media in the race for finding new consumers and standardizing our consumption (Atzeni, 2019) [3]. One of the mighty purposes of e-commerce regulation is to boost confidence in transactions occurring in such an environment (Alqodsi, 2021) [4].

The importance of the current study is related to its focus on objectively identifying the influences of public perception regarding the information exchange monitoring tolerance, insisting on causal relations to isolate the determinants, and eliminating redundancies (collinearity) after performing many robustness checks in advance. Moreover, full conditions for replicating the results, including the performance metrics, were ensured by starting from a publicly available large dataset. The latter as a scientific principle also stood
on variable processing and model generation script sequences provided for each selection step and described in many details.

The following content of this paper includes a brief review of the existing scientific literature on this specific topic together with the presentation of the principal hypotheses, a section dedicated to presenting the data and the combination of methods and tools used to obtain the results, another one for discussing these results, and, finally, the conclusions of the analyses.

## 2. Literature Review

At a certain point, privacy and security concerns emerged as the main impediment for Internet-based shopping (Udo, 2001) [5]. For children, it is desirable to accept the idea of monitoring for their online safety (MacFarlane and Holmes, 2009) [6], but for adult individuals, this raises several questions. These are related to online privacy (Boerman et al., 2018) [7] and identity protection (Milne et al., 2004) [8]. In addition to surveillance acceptance, there are other factors, e.g., surveillance in public areas (Kostka et al., 2021) [9], e-commerce surveillance for critical health-related reasons (Leas et al., 2021) [10], or ecommerce and social media monitoring to prevent wildlife cybercrime (Xiao at al., 2016) [11]. Moreover, other authors (Lin et al., 2021) [12] have shown in an experimental model that deep privacy protection does not necessarily make consumers better off, and weak privacy protection does not necessarily hurt consumers.

In general terms of acceptance of governments' surveillance, there is evidence in the scientific literature that this is closely related to cultural factors and privacy concerns (Thompson et al., 2020) [13]. In addition, regarding the social networks, it seems that under conditions of light state regulation, "Big Tech" surveillance leaves room for real dangers such as using data for manipulative and antidemocratic purposes or undermining people's rights to privacy and free speech (Bates, 2021) [14].

According to Westerlund (2021), trust in governments [15] strongly relates to critical issues such as health-related ones (Moucheraud et al., 2021) [16] or tolerance for monitoring the exchange of information by them. In addition, van Heek et al. (2017) [17] considered that the acceptance of surveillance in public areas is a relevant indicator for accepting most types of information monitoring and a starting point when analyzing the surveillance tolerance of any kind. Other scholars (Keddell, 2021) [18] insist that variables suggesting conscientiousness, altruism, caring for others, and the mindset of the hive are also strong predictors for this type of tolerance. Moreover, Winter (2018) [19] discusses a particular kind of lack of transparency. It is afferent to governing broad collections of personally identifiable data or the so-called 'Black Box Society' syndrome. The latter is also associated with the people's acceptance of government oversight of information exchange and tolerance of discrimination of any kind (e.g., gender). Even more, Fox et al. (2021) [20] consider that other more general individual features (such as age, gender, marital status, number of children, education level, and the size of the city of residence) could predict the acceptance of information exchange monitoring by governments.

As a result of the arguments based on the existing literature, the following hypotheses emerged from the outset:

Hypotheses 1 (H1). Tolerating the information exchange monitoring by governments strongly depends on the level of trust associated with them.

Hypotheses 2 (H2). This sort of tolerance strongly depends on accepting the surveillance in public areas and, generally, any surveillance type.

Hypotheses 3 (H3). The information exchange monitoring acceptance also depends on individual features such as being conscientious and unselfish.

Hypotheses 4 (H4). This specific tolerance also depends on the acceptance level of discrimination, injustice, or lack of transparency.

Hypotheses 5 (H5). Accepting information exchange monitoring by governments depends on respondent socio-demographic characteristics.

## 3. Materials and Methods

This article started from one of the most comprehensive datasets of the World Values Survey (WVS). It is about the .dta file in the WVS TimeSeries 19812020 Stata v2 0.zip archive (available for download at: https:/ /www.worldvaluessurvey.org/WVSDocumentationWVL. jsp-last accessed on the 1 October 2021). The latter includes more than 1000 variables and more than 400,000 observations. Its .csv export followed the simple binary derivation (H010bin) of the original variable to analyze (H010, Government has the right to monitor all electronic mail messages and any other information exchange). This is achieved by considering the symmetric split of its original four-point scale (Tables A1 and A2-the Appendix A). An option to generate numerical values for labeled variables was enabled when exporting.

Several methods, techniques, and instruments served to identify the main influences of information exchange monitoring tolerance. A schematic representation is also included (Appendix A-Figure A1).

The first thing to do was to load this .csv export into the Rattle data mining interface (version 5.4.0—https: / / rattle.togaware.com, last accessed on 1 December 2021) of R, then set H010bin as the target, ignore its source (H010) from the list of inputs and apply the Adaptive Boosting technique (the 1st selection round) for decision tree classifiers (Karabulut and Ibrikci, 2014) [21]. This step was performed using the default settings as available and suggested in the 5.4.0 version of the Adaptive algorithm (Trees: 50, Max Depth: 6, Min Split: 20, Complexity: 0.01, Learning Rate: 0.3, Threads: 2, Iterations: 50, Objective: binary logistic) to discover the most resilient related variables. Some of the tuning parameters (Williams, 2011) [22] were controllable when choosing the Adaptive option (Trees-indicating the number of trees to build; Max Depth-pointing to how many levels when creating trees; Min Split-specifying the minimum number of observations that must exist at a node in the tree before it is considered for splitting; complexity-used to control the size of the decision tree and to select an optimal tree size; Xval—related to the maximum accepted cardinality of the input; and Iterations-number of boosting iterations), while others were not (the only way to control these parameters is when switching the algorithm from Adaptive to Extreme Boosting), namely: Learning Rate-usually locked to a value indicating how quickly the algorithm proceeds down the gradient descent where smaller values reduce the chance of overfitting but also increase the time to find the optimal fit; Threads-usually locked to a specific value depending on the number of CPU cores and determining how much faster the algorithm will run (Chen, 2008) [23]; Objective-the so-called objective function based on which the algorithm optimizes.

Next, the 2nd round of selection took place in Stata 16 MP (64-bit version). It consisted of successive invocations (stages) of two powerful commands in the LASSO (Ahrens et al., 2020) [24] package (CVLASSO to perform random cross-validations and RLASSO for controlling overfitting) until there were no more losses in selections.

A processing/recoding phase followed. It involved the remaining variables. In addition, some sociodemographic ones for control and cross-validation purposes benefited this treatment. It mostly meant removing the missing and DK/NA (do not know/no answer) values and reversing the scales in case of larger values not reflecting higher intensities on the original ones, but vice versa.

Next, the 3rd round of selection occurred also in many consecutive stages using mixed-effects modeling (DeBruine and Barr, 2021) [25]. It used the remaining variables (after the second round and recoded at the previous step-Table A1, Appendix A). In addition, others (still used here even if not resisting the first two rounds) were substantial for cross-validations and further controls (e.g., gender, age, marital status, number of children, education level, income level, professional situation, region, and settlement size). They also provided a different dimension of cross-validation than that based on the random
extraction of subsets of data as used in the second selection round, namely CVLASSO using k -folds (samples) with random splits (Roberts et al., 2017) [26]. Moreover, such arbitrary divisions often fail to comprehensively cover the factor space (Picard and Cook, 1984) [27]. The same applies when searching for a reliable method of estimating the goodness of a prospective prediction (Sheridan, 2013) [28]. Only some variables resulted at this selection point. These were the ones that did not lose significance no matter the clustering criteria and both types of mixed-effects regressions (melogit for the binary form of the response variable and meologit as mixed-effects ordered logit for the one having values on a scale).

At the next step (4th round), reverse causality checks served the selection. The latter meant using pairs of individual models built by taking only each of the remaining influences and the variable to analyze (wished roles) and by reversing their roles (the response becomes an input and vice versa or reversed roles). First, only those variables generating both more explanatory power/larger R-squared (Irandoukht, 2021) [29] and information gain/smaller values for both AIC and BIC (Lai, 2020) [30] for the wished roles vs. the reversed ones resulted after using ordered logit regressions. They acted as predictors (determinants). Only for those variables with contradictory results (explanatory power vs. information gain) additional reverse causality checks using binary logistic regressions were necessary. The results have been considered decisive. Additionally, prediction nomograms (Zlotnik and Abraira, 2015) [31] resulted when considering both the remaining (most stalwart) influences and predictors.

Next (5th round), existing collinearity between both the remaining influences (those emerging after the 3 rd round) and the selected predictors (those resulting after the 4th) was tested using OLS regressions and assessing the computed VIF (Variance Inflation Factor) against (Equation (1)) the model's maximum accepted threshold (Vatcheva et al., 2016) [32]. In addition, the maximum absolute values of correlation coefficients (Schober et al., 2018) [33] (Mukaka, 2012) [34] from influences and predictors' matrices with correlation coefficients (maxAbsVPMCC) were an object of evaluation.

$$
\begin{equation*}
\text { the model's maximum accepted VIF }=1 /(1-\text { model's R-squared }) \tag{1}
\end{equation*}
$$

Finally, each sociodemographic variable previously used for cross-validation served controlling purposes (new models). The latter meant adding them one-by-one on the top of the existing most robust models. First, they included all of the most resilient influences (those emerging after the 3rd selection round). Second, all of the most robust predictors (those remaining at the end of the 4th selection round).

This proposed framework's complexity (Appendix A-Figure A1) is also due to its dual nature. It means including both automatic/unsupervised steps (first two data mining rounds-top of Figure A1) and those supervised. The latter include derivations, further cross-validation-based selections according to well-established criteria, causality and collinearity checks, and additional controls (center and bottom of Figure A1). Moreover, this combination is an accepted practice in the field (Yao et al., 2010) [35] (Martín-Valdivia et al., 2013) [36] (El Aissaoui et al., 2019) [37].

All data processing and selection/mining/pattern discovery rounds (Feldmesser et al., 2006) [38] (Boley et al., 2013) [39] (Kopf and Homocianu, 2016) [40], together with all regressions and tests, took place on a Windows Server Datacenter virtual machine with six Intel Xeon Gold 6240 Cascade Lake CPU logical cores and ~24 Gigabytes of random-access memory, in a private cloud (https:/ /cloud.raas.uaic.ro-last accessed on the 27 November 2021) managed using Open Stack on Ubuntu.

A persistent Google Drive online folder keeps all processing and analysis script sequences used in this study. In addition, due to the unavailability of preview after sharing, the URL for each script has been altered. That allows a one-step download (the specific syntax ending with "Eexport = download"). This means no further confirmation is required.

## 4. Results

After performing the first selection step using the Adaptive Boosting technique in the Rattle library of R, a set of 28 variables resulted. One way to look at the importance of the resulting variables is by considering their corresponding frequencies of use in the tree construction. The default settings suggested for the Adaptive algorithm (as indicated in the Materials and Methods section) have been used for all controllable parameters.

Next, the results of this 1st selection round served for the 2 nd one based on the intersection of CVLASSO and RLASSO performed in many consecutive stages (three) until there was no loss in selection. Only 17 variables remained after this 2nd round, namely A106C, A124_02, C041, D026_03, E069_11, E228, E233B, E236, E262B, H002_01, H009, H011, X025A_01, Y022, Y022A, Y023, Y023C. Just one variable generated an error when performing such selections. This is due to its type (COUNTRY_ALPHA as a string variable). This suggested peculiarities between countries, and it will be the subject of further research.

The next concern before going to the 3rd selection step, dedicated to cross-validations on specified criteria, was to find the sources of two variables, namely Y022 and Y023. The latter are two Welzel indexes for equality and emancipative values, respectively, including three components each, namely Y022A (WOMJOB), Y022B (WOMPOL), Y022C (WOMEDU), Y023A (HOMOLIB), Y023B (ABORTLIB), and Y023C (DIVORLIB). These six in the list above are direct derivations from the original variables C001, D059, D060, F118, F120, and F121, respectively (https:/ /www.worldvaluessurvey.org/WVSContents.jsp?CMSID= welzelidx\&CMSID=welzelidx—last accessed on the 11 November 2021). Consequently, all these six completed the set of predictors resulting from the 2 nd selection round. This occurred along with removing all derivations, such as Y022 and Y023 and the like. In addition, the resulting list of variables (19) together with the ones to be used as clustering criteria in cross-validations or for further controls will be all recoded to remove missing and DK/NA answers and adapt the scales to the original meaning of the source questions (Tables A1 and A2-the Appendix A).

The results after all three stages of the 3rd selection round using mixed-effects modeling consisted in discovering and emphasizing the influences resisting no matter the chosen clustering criteria from a set of sociodemographic variables (Table A3). This set included gender (X001nt), age (X003nt), marital status (X007nt and X007bin), number of children (X011nt), employment status (X028nt), the scale of incomes (X047nt), the region where the interview was conducted (X048nt), and settlement size (X049nt). Just 11 influences from the previous list of 19 proved to be robust in the 1st stage (Table A3) of this 3rd selection round, namely: A106Cnt, C001nt, C041nt, D026_03nt, D060nt, E069_11nt, E262Bnt, F121nt, H009nt, H011nt, and X025A_01nt (Tables A1 and A2). The eight remaining variables failed at least in one scenario (A124_02nt—model 18; E228nt—models 9, 10 and 13; E233Bnt—15 and 18; E236nt-1,3 and 4; H002_01nt-4 and 11-18; D059nt-1-3 and 5-10; F118nt-8 and 17; F120nt-1-7.). When cross-validating again (2nd stage—the Stata script at https:/ / drive. google.com/u/0/uc?id=1QwTPEx7i9ho_lJDJxZgDCkMYHXtSJhiu\&export=download, last accessed on 1 December 2021) starting from these 11 remaining influences and the same clustering criteria for cross-validations, the variable corresponding to the education level (X025A_01nt) failed by dramatically losing its significance on the gender criteria (X001nt) for meologit (mixed-effects ordered logit). At the 3rd stage of this selection round (the Stata script at https:/ /drive.google.com/u/0/uc?id=1gEY90H-HzQJM3dJRa5iwiw4gUSTsGxE3 \&export=download, last accessed on 1 December 2021), the education level left the list of fixed effects (from models). Still, it served as an additional cross-validation criterion (random effect) for the remaining 10 influences that passed all the tests. Moreover, the year of the survey (S020) additionally served as cross-validation criterion (all four values between 2017 and 2020—the Stata script at https:/ / drive.google.com/u/0/uc?id=1ZuvPkTi6 SD8d1CljG_EWT8aPwONKrdUD\&export=download, last accessed on 1 December 2021). However, the results of this 3rd selection round persisted (those 10 influences were still significant).

The 4th selection round dedicated itself to reverse causality checks. It additionally removed five influences in two stages corresponding to the two types of regression analysis used (ordered logit-Table A4, and binary logit-Table A5) when focusing on the "true" predictors (the sense of the influences counted). It gave up A106Cnt (membership of mutual aid groups), C001nt (gender-related discrimination in terms of access to jobs), E262Bnt (Internet as an information source), H011nt (governments have the right of collecting information about anyone living in a country), and D060nt (gender-related discrimination in terms of access to university education). The first four proved to be more likely response variables (rather than predictors). Additionally, this resulted when taken one-by-one together with the outcome (H010nt in the 1st stage, and H010bin in the 2nd). It meant better results for the second/even number model ( $1 \mathrm{vs} .2,3 \mathrm{vs} .4,13 \mathrm{vs} .14$, and 19 vs . $20-$ Table A4, in terms of R-squared, AIC, and BIC). The same for the last one in both forms, namely D060nt and D060bin. The latter brought contradictory results in the 1st stage of the 4 th round of selection. It proved to be more likely a response rather than a predictor variable. Moreover, it happened when considered together with H010 (the outcome) in both processed forms (2nd stage). Better results emerged for the second/even number model ( 5 vs. 6 and 7 vs. 8 -Table A5, in terms of R-squared, AIC, BIC, and classification accuracy-AUCROC).

The 5th selection round responsible for discovering evidence of collinearity (OLS max.Comput.VIF overpassing OLS max.Accept.VIF) found no issues (Table A6-models 1-3 based on binary logistic regressions and models 4-6 based on ordered logistic ones).

For all remaining influences (those 10 kept after the 3rd stage of the 3rd selection round above) and for the ones acting more as predictors (those 5 resulting after the 4th round) of the information exchange monitoring tolerance, two prediction nomograms based on binary logistic regressions caught attention (Figures 1 and 2).


Figure 1. Prediction nomogram for the most comprehensive set of validated influences (model 1, Table A7). Source: The Stata script at https:/ / drive.google.com/u/0/uc?id=1WeG-gV3J2nUQ-9u3 cWhLRy_FHZf1B4Wb\&export=download, last accessed on 1 December 2021.

Nomogram


Figure 2. Prediction nomogram for the most comprehensive set of validated determinants. Source: The Stata script at https:/ /drive.google.com/u/0/uc?id=1Ye-eraqZtrLIcVs_SNhsMG0qgY3c5N1H\& export=download, last accessed on 1 December 2021.

When dragging imaginary perpendicular lines corresponding to each influence from those 10 (the first nomogram-Figure 1), the afferent scores will emerge on the first $X$ axis (Score). Moreover, such scores can gather, and the total result will correspond to a certain probability if considering the second $X$ axis (Total score-Figure 1). For instance, if summing up the extreme values on the right (the most favorable combination) for all 10 influences, the total score $(1.25+1+1.3+1.4+1.1+1.5+1.7+1.6+7.8+10=28.65)$ will correspond to a maximum probability between $95 \%$ and $99 \%$, based on a good-to-excellent classifier $($ AUCROC $=0.8743$, Table A7—model 1).

Similarly, for the second nomogram including only those 5 predictors (Figure 2), the total score for the most favorable combination of their values $(2.5+2.8+2.2+2.7+10=20.2)$ will correspond to a maximum probability of more than $80 \%$, based on a good classifier ( $\mathrm{AUCROC}=0.8032$ ).

The use of nomograms also gives an idea about the magnitude of the marginal effects for the identified stalwart influences and determinants. In addition, they serve to understand the cumulated ones by considering the amplitude of any scale visible in such graphical constructs.

The following results correspond to the end of controlling both all of the 10 most resilient influences (Figure 1) and all the 5 most robust predictors (Figure 2) of these 10. Only four of the socio-demographic criteria previously used in cross-validations indicated significance. Moreover, this was when they were included separately in the models and if considering both types of regressions and corresponding response variables (the intersection between Table A7—models 3-5, 7, 10, 13-15, 17, and 20; and Table A8—models $4-7,9,10,14-17,19$, and 20 , meaning models $4,5,7,10,14,15,17$, and 20 ). It is about the marital status (both the binary and scale form being the only ones with a positive sign), the education level attained considering the ISCED scale, and the settlement size.

By contrast, the respondent's age is a good example of a not robust and reliable variable for this specific analysis. It proved to be significant (although with the smallest magnitude in a nomogram with 11 influences, as seen at https: / / tinyurl.com/2p988n7z, last accessed on 19 January 2022-2nd page, having the source script available online at https: / /tinyurl.com/y2syam3a, last accessed on 19 January 2022) only in the first case (together with those 10 influences-Table A7, model 3). The lack of robustness of age is primarily due to its loss of significance when considered only together with all of the 5 most resilient determinants of these 10 influences-Table A8, model 3. Another cross-validation of those 10 most resilient influences plus the respondent's age (a list of 11 fixed effects) served the same conclusion. The remaining criteria for this extra cross-validation were gender, marital status (in two forms), number of children, education level, income level, professional situation, region, and settlement size (all as random effects when using both melogit and meologit). The results (at https:/ /tinyurl.com/2hmzh3t6, last accessed on 19 January 2022) and the corresponding source script (at https://tinyurl.com/2p8cn6va, last accessed on 19 January 2022) indicate that only the respondent's age failed, as seen in the following models:

- 1 (cross-validation on gender, binary outcome);
- 6 (cross-validation on employment status, binary outcome);
- 8 (cross-validation on regions and countries, binary outcome);
- $\quad 9$ (cross-validation on settlement size, binary outcome);
- 12 (cross-validation on marital status as with someone or not, scale outcome);
- 14 (cross-validation on the highest educational level attained, scale outcome);
- 15 (cross-validation on employment status, scale outcome);
- 17 (cross-validation on regions and countries, scale outcome); and
- 18 (cross-validation on settlement size, scale outcome).

Moreover, when additionally controlling using the survey year (2017-2020—Stata script at https: / /drive.google.com/u/0/uc?id=1mYU-bjIFJOyvn_vUndo26fykLTdWkuB8 \&export=download, last accessed on 1 December 2021), the latter did not resist in terms of significance when used only together with those five most robust predictors (Table A8) in an ordered logistic regression.

In terms of support, the results of most regression models stand on many observations (more than 60,000 ). The latter is mainly due to the question corresponding to the variable to analyze, which appears only in the last wave (2017-2020-Stata script at https:/ / drive. google.com/u/0/uc?id=1MGkb1ko1oGdv3prlp1aOy5bO854KcHcD\&export=download, last accessed on 1 December 2021).

## 5. Discussion

The results after the 3rd selection round based on cross-validations provided the most persisting influences (predictors or not in causal terms) related to the tolerance for information exchange monitoring analyzed in this paper. They also passed the collinearity checks in the 5th selection round (Table A6). They correspond to 10 variables. The first one is keeping track of an active vs. inactive member in mutual/self-aid groups. The following two concern the attitude towards female gender discrimination (when considering the right to a job and university education). An additional one is about the attitude towards the priority of work when choosing between work and leisure. The so-called duty towards society to have children also resisted cross-validations. The same goes for those showing the level of trust in government, measuring how often the Internet serves as an information source as declared by the respondent, or the divorce acceptance. These last two are about the attitudes towards two so-called rights of governments: to keep people under video surveillance in public areas and collect information about anyone living in a country. Most of them have a positive influence on the response variable. The latter is true except for two variables indicating the Internet as an information source and divorce as justifiable. For these two, all regressions indicate negative coefficients. They point out two respondent categories less likely to tolerate the idea of a so-called government right to monitor all
electronic mail messages and any other information exchange. It is about people using the Internet more often as a source of information and those more inclined to accept the idea of separation in couples (divorce). By contrast, other influences with positive signs indicate people who are more likely to tolerate information exchange monitoring by governments:

- Those more active in mutual/self-support groups, more hard-working, more committed in terms of societal duties (e.g., having children as a duty);
- The ones more confident in administration and more tolerant towards accepting the collection of information, including surveillance acceptance in public areas by the government;
- Those more inclined to tolerate gender discrimination in education and jobs.

The results after the 4th selection round indicate only five determinants. These also passed the collinearity checks in the 5th one (Table A6). They are more than simple influences because they also resisted causality checks (Tables A4 and A5). They correspond to the attitude towards work (it should come first even if it means less spare time as an indication of conscientiousness). In addition are the one towards society (duty to have children), the confidence in the government, the opinion regarding how justifiable a divorce is, and the acceptance of the video surveillance in public areas by the government. These 5 determinants emerged through causality-based selections from those 10 influences above.

The first two indicate that more conscientious people tolerate monitoring better. The latter is in line with the recent findings of Areal (2021) [41], who associated conscientiousness with the idea of communion. Furthermore, openness to new experiences seems to be closely linked to communion (Booker and Graci, 2021) [42]. Therefore, the higher the respondent's conscientiousness and openness (a significant part of those five personality dimensions in the Big 5 theory), the larger this specific type of tolerance.

The third and the fifth show that the people's trust in governments and their institutions positively influences the tolerance of monitoring and surveillance on their part (Nakhaie and de Lint, 2013) [43]. The latter is in line with existing research regarding personality together with individual factors and monitoring acceptance (Zweig and Webster, 2003) [44] (van Heek et al., 2017) [17]. The fourth of these five remaining determinants above indicated that respondents who considered the divorce acceptable are also less likely to show any form of tolerance in monitoring the exchange of information by the government. This finding makes sense if related to other evidence (Distler et al., 2020) [45] and the idea (Axinn and Thornton, 1992) [46] that people who place less importance on marriage/union and view divorce as an acceptable alternative are also the ones with more risk of subsequent divorce. Therefore, the higher the inclination towards trust and communion (attributes of agreeableness as personality dimension from those five in the Big 5 theory together with altruism, kindness, affection, and other prosocial behaviors), the bigger this tolerance.

The role of some socio-demographic variables that proved to be significant when added one-by-one to both the list of the 10 most persistent influences already discovered and that of the 5 most robust predictors of these 10 additionally emerges. The latter means that less-educated people (when considering the ISCED 2011 scale), those from settlements with fewer inhabitants, and married people or people living in a couple as married are much more likely to tolerate any type of information exchange monitoring by governments. The first two are in line with the recent findings of Moucheraud et al. (2021) [16], who emphasized that trust in governments is more common among people with less schooling and those living in rural areas. Moreover, Gronlund and Setala (2007) [47] and Zhao and Hu (2017) [48] indicated that people with higher education have less trust in government (Xie et al., 2017) [49] (Macoubrie, 2006) [50] since they have a more critical attitude towards governments. Moreover, Alesina et al. (2004) [51] have already shown that married people are more equipped for building relationships and show more optimism and trust in general (Bradley and Hojjat, 2016) [52].

Consequently, most of the hypotheses formulated at the beginning of this study are validated. This applies when considering both these results and the existing scientific literature and theories supporting them.

The methodology used in this paper stands on three powerful scientific principles: triangulation, cross-validation, and replicability/reproducibility (Munafò and Smith, 2018) [53]. The first meant using various methods, techniques, and tools and obtaining results that agree across all of them. For instance, data mining based on Adaptive Boosting, LASSO variable selection techniques, mixed-effects modeling, reverse causality checks, different regressions, post-estimations of accuracy and goodness of fit, maximum absolute values for correlation coefficients among influences and predictors, dynamic thresholds for variance inflation factors, and generation of risk prediction nomograms. The second (Roberts et al., 2017) [26] was equivalent to testing many subsamples randomly (CVLASSO) and not randomly (clusters using many socio-demographic criteria) extracted from the entire dataset. The third (Baker, 2016) [54] meant providing full support for replicating the results. This started from a publicly available dataset used together with processing and generation script sequences provided for each selection step and described in much detail in this paper. To that extent, the entire approach is helpful when trying to explore and understand other complex phenomena. Indeed, this could go beyond this specific example of information exchange monitoring tolerance.

## 6. Conclusions

A significant conclusion of this study is that the tolerance for information exchange monitoring by governments highly depends on some determinants. They measure individual features, attitudes, and tolerance levels. For the first of these categories, the quality of conscientiousness and putting work before leisure, and being more engaged in society (duties), including having children, must be emphasized. For the other, the level of confidence in government, the lack of confidence in unions coupled with the attitude towards divorce as justifiable (negative sign), and the acceptance of video surveillance in public areas. In addition, there is an association between this kind of tolerance for information exchange monitoring and some other influences such as being active in mutual aid groups, accepting gender-related discriminations, using more often the Internet as an information source (negative sign), and accepting a so-called governmental right to collect information about anyone living in a country. Therefore, the paper differentiates between general influences and predictors/determinants based on additional tests of reverse causality. More, some controls emphasized the negative role of the education level and settlement size and the positive one of living in a couple or being married. All these conclusions stand on models with good-to-excellent classification accuracy. They resulted after performing many techniques and multiple robustness checks in different selection rounds.

## 7. Limitations and Future Research

In terms of using the results of this research the right way, several limitations emerge. First, the responses corresponding to the variable to analyze from the World Values Survey are limited to just the last wave (2017-2020) from all seven available. The latter means that the afferent question is recent and cross-validations using the wave criteria are still not achievable. Moreover, the responses in this wave belong to respondents from just 51 countries from the entire list of 105 available in the World Values Survey. Even more, no questions about the respondents' mood associated with the moments dedicated to answering the rest of the questionnaire elements are available. Moreover, this can lead to differences in many variables to be analyzed, including the information exchange monitoring tolerance. These three constraints slightly reduce to some extent this study's generalizing power.

Additionally, further research should focus on the role of some regional-level peculiarities and corresponding variables that may influence this type of tolerance. Moreover, other incipient selection techniques could be used (e.g., dependency networks based on Bayesian statistics), and specific results could be compared/intersected with those of the currently used approach.

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Institutional Review Board Statement: The data used in this study belong to the World Values Survey which conducted surveys in accordance with the Declaration of Helsinki.

Informed Consent Statement: Informed consent was obtained by the World Values Survey from all subjects involved in the study.

Data Availability Statement: Data belongs to the World Values Survey (the WVS TimeSeries 19812020 Stata v2 0.zip file available at https:/ /www.worldvaluessurvey.org/WVSDocumentationWVL.jsplast accessed on the 1 October 2021).

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Conflicts of Interest: The author discloses no conflict of interest.

## Appendix A

Table A1. Most relevant items for this study from the WVS dataset.

| Variable | Short Description | Coding Details |
| :---: | :---: | :---: |
| H010 | Government has the right to monitor all e-mails and any other information exchange (original format) | <0-Don't know/No Answer/Not applicable/Not Asked/Missing (DK/NA/M); 1-Definitely should have the right ... 4-Definitely should not have the right; |
| H010nt | Same as above, but with a reversed scale and with null and DK/NA/M treatment (H010nt $=4$-H010 if H010! $=. \&$ H010 > 0), VARIABLE TO BE ANALYSED/OUTCOME/RESPONSE | Null (.)-DK/NA/M; 3-Definitely should have the right . . . 0-Definitely should not have the right; |
| H010bin | Same as above, but in its binary form and with null and DK/NA/M treatment (H010bin $=1$ if H010! $=. \&$ H010 > 0 \& H010 < 3; H010bin = 0 if H010! $=. \& H 010>2$ ), ALTERNATIVE OUTCOME VARIABLE | Null (.)-DK/NA/M; 1-Definitely should have the right/Probably should have the right; 0-Probably should not have the right/Definitely should not have the right; |
| A106C | Active/Inactive membership: Self-help group, mutual aid group (original format) | <0-DK/NA/M; 0-Not a member; 1-Inactive member; 2—Active member; |
| A106Cnt | Same as above, but with null and DK/NA/M treatment (A106Cnt $=$ A106C if A106C! $=. \&$ A106C >= 0) | Null (.)-DK/NA/M; 0-Not a member; 1-Inactive member; 2—Active member; |
| A124_02 | Neighbors: People of a different race (original format) | <0-DK/NA/M; 0-Not mentioned; 1-Mentioned; |
| A124_02nt | Same as above, but with null and DK/NA/M treatment (A124_02nt = A124_02 if A124_02! $=. \&$ A124_02 >= 0) | Null (.)-DK/NA/M; 0-Not mentioned; 1-Mentioned; |
| C001 | Jobs scarce: Men should have more rights to a job than women (original format and source for Y022A = WOMJOB- Welzel equality-1 or Gender equality: job) | <0-DK/NA/M; 1-Agree; 2-Neither agree nor disagree; 3-Neither; |
| C001nt | Same as above, but with a changed scale and DK/NA/M treatment (C001nt $=2$ if $\mathrm{C} 001==1 ;$ C001nt $=0$ if C001 $=2 ;$ C001nt $=1$ if C001 $==3$ ) | Null (.)-DK/NA/M; 2—Agree; 1-Neither agree nor disagree; 0-Disagree; |
| C041 | Work should come the first even if it means less spare time (original format) | <0-DK/NA/M; 1—Strongly agree . . . 3-Neither agree nor disagree .. . 5-Strongly disagree; |
| C041nt | Same as above, but with a reversed scale and with null and DK/NA/M treatment (C041nt $=5-\mathrm{C} 041$ if C041! $=. \& \mathrm{C} 041>0$ ) | Null (.)-DK/NA/M; 4-Strongly agree ... 2-Neither agree nor disagree . . . 0 -Strongly disagree; |
| D026_03 | Duty towards society to have children (original format) | Identical to the case of C041; |
| D026_03nt | Same as above, but with a reversed scale and with null and DK/NA/M treatment (D026_03nt = 5-D026_03 if D026_03! = . \& D026_03 > 0) | Identical to the case of C041nt; |
| D059 | Men make better political leaders than women do (original format and source for Y022B $=$ WOMPOL-Welzel equality- 2 or Gender equality: politics) | <0-DK/NA/M; 1—Strongly agree . . 4-Strongly disagree; |
| D059nt | Same as above, but with a reversed scale and with null and DK/NA/M treatment (D059nt $=4$-D059 if D059! $=. \&$ D059 > 0) | Null (.)-DK/NA/M; 3-Strongly agree ... 0-Strongly disagree; |
| D060 | University is more important for a boy than for a girl (original format and source for Y022C = WOMEDU- Welzel equality-3 or Gender equality: education) | Identical to the case of D059; |

Table A1. Cont.

| Variable | Short Description | Coding Details |
| :---: | :---: | :---: |
| D060nt | Same as above, but with a reversed scale and with null and DK/NA/M treatment (D060nt $=4$-D060 if D060! $=. \&$ D060 $>0$ ) | Identical to the case of D059nt; |
| E069_11 | Confidence: The Government (original format) | <0-DK/NA/M; 1-A great deal . . 4-Not at all; |
| E069_11nt | Same as above, but with a reversed scale and with null and DK/NA/M treatment (E069_11nt = 4-E069_11 if E069_11! $=. \&$ E069_11 > 0) | Null (.)-DK/NA/M; 3-A great deal . . 0-Not at all; |
| E228 | Democracy: The army takes over when the government is incompetent (original format) | $<0-\mathrm{DK} / \mathrm{NA} / \mathrm{M} ; 0$-It is against democracy . . . 10—An essential characteristic of democracy; |
| E228nt | Same as above, but with null and DK/NA/M treatment (E228nt = E228 if E228! = . \& E228 >=0) | Null (.)-DK/NA/M; 0—It is against democracy . . . 10—An essential characteristic of democracy; |
| E233B | Democracy: People obey their rulers (original format) | Identical to the case of E228B; |
| E233Bnt | Same as above, but with null and DK/NA/M treatment (E233Bnt = E233B if E233B! = . \& E233B >=0) | Identical to the case of E228Bnt; |
| E236 | Democraticness in own country (original format) | <0-DK/NA/M; 0-It is against democracy . . 10-Completely democratic; |
| E236nt | Same as above, but with null and DK/NA/M treatment (E236nt = E236 if E236! = . \& E236 >=0) | Null (.)-DK/NA/M; 0-It is against democracy . . 10-Completely democratic; |
| E262B | Information source: Internet (original format) | <0-DK/NA/M; 1—Daily . . 5 Never; |
| E262Bnt | Same as above, but with a reversed scale and with null and DK/NA/M treatment ( $\mathrm{E} 262 \mathrm{Bnt}=5-\mathrm{E} 262 \mathrm{~B}$ if $\mathrm{E} 262 \mathrm{~B}!=. \& \mathrm{E} 262 \mathrm{~B}>0$ ) | Null (.)-DK/NA/M; 4—Daily ... 0—Never; |
| F118 | Justifiable: Homosexuality (original format and source for Y023A = HOMOLIB- Welzel choice-1 or Homosexuality acceptance) | <0-DK/NA/M; 1—Never justifiable . . . 10—Always justifiable; |
| F118nt | Same as above, but with null and DK/NA/M treatment (F118nt = F118 if F118! = . \& F118>0) | Null (.)-DK/NA/M; 1—Never justifiable . . . 10—Always; |
| F120 | Justifiable: Abortion (original format and source for Y023B = ABORTLIB- Welzel choice-2 or Abortion acceptable) | Identical to the case of F118; |
| F120nt | Same as above, but with null and DK/NA/M treatment (F120nt = F120 if F120!=. \& F120 $>0$ ) | Identical to the case of F118nt; |
| F121 | Justifiable: Divorce (original format and source for Y023C $=$ DIVORLIB- Welzel choice-3 or Divorce acceptable) | Identical to the case of F118; |

Table A1. Cont.

| Variable | Short Description | Coding Details |
| :---: | :---: | :---: |
| F121nt | Same as above, but with null and DK/NA/M treatment (F121nt $=$ F121 if F121! $=. \&$ F121>0) | Identical to the case of F118nt; |
| H002_01 | Frequency in your neighborhood: Robberies (original format) | <0-DK/NA/M; 1-Very Frequently . . 4-Not at all frequently; |
| H002_01nt | Same as above, but with a reversed scale and with null and DK/NA/M treatment (H002_01nt = 4-H002_01 if H002_01! = . \& H002_01 > 0) | Null (.)-DK/NA/M; 3-Very Frequently ... 0-Not at all frequently; |
| H009 | Government has the right to keep people under video surveillance in public areas (original format) | Identical to the case of H010; |
| H009nt | Same as above, but with a reversed scale and with null and DK/NA/M treatment (H009nt $=4$-H009 if H009! $=. \& \mathrm{H} 009>0$ ) | Identical to the case of H010nt; |
| H011 | Government has the right to collect information about anyone living in a country (original format) | Identical to the case of H010; |
| H011nt | Same as above, but with a reversed scale and with null and DK/NA/M treatment (H011nt $=4-\mathrm{H} 011$ if H011! $=. \& \mathrm{H} 011>0)$ | Identical to the case of H010nt; |
| X025A_01 | The highest educational level attained ISCED 2011 (original format) | <0-DK/NA/M; 0—Early childhood education (ISCED 0)/no education ... 8-Doctoral or equivalent (ISCED 8); |
| X025A_01nt | Same as above, but with null and DK/NA/M treatment (X025A_01nt = X025A_01 if X025A_01! $=$. \& X025A_01 >= 0) | Null (.)-DK/NA/M; 0—Early childhood education (ISCED 0)/no education ... 8-Doctoral or equivalent (ISCED 8); |
| X001 | Gender (original format) | <0-DK/NA/M; 1-Male; 2-Female; |
| X001nt | Same as above, but with null and DK/NA/M treatment (X001nt $=\mathrm{X} 001$ if $\mathrm{X} 001!=. \&$ X001 > 0) | Null (.)-DK/NA/M; 1-Male; 2—Female; |
| X003 | Age (original format) | <0-DK/NA/M; |
| X003nt | Same as above, but with null and DK/NA/M treatment (X003nt = X003 if X003! $=. \&$ X003 > 0) | Null (.)-DK/NA/M; |
| X007 | Marital status (original format) | <0-DK/NA/M; 1-Married; 2-Living together as married; 3-Divorced; 4-Separated; 5-Widowed; 6-Single/Never married; |
| X007nt | Same as above, but with a reversed scale and with null and DK/NA/M treatment ( $\mathrm{X} 007 \mathrm{nt}=6$-X007 if $\mathrm{X} 007!=. \& \mathrm{X} 007>0$ ) | Null (.)-DK/NA/M; 5-Married . . . 0-Single/Never married; |
| X007bin | Same as above, but in its binary form and with null and DK/NA/M treatment (X007bin $=1$ if X007 == 1 । $\mathrm{X} 007==2$; X007bin $=0$ if $\mathrm{X} 007!=. \& \mathrm{X} 007>2$ ) | Null (.)-DK/NA/M; 1—Married/Living together as married; 0-Otherwise; |
| X011 | How many children do you have (original format) | <0-DK/NA/M; 0-No child; 1-1 child; 2-2 children . . 5-5 children or more; |
| X011nt | Same as above, but with null and DK/NA/M treatment (X011nt = X011 if X011! $=. \&$ X011 >=0) | Null (.)-DK/NA/M; 0-No child; 1-1 child; 2-2 children . . 5-5 children or more; |

Table A1. Cont.

| Variable | Short Description | Coding Details |
| :---: | :---: | :---: |
| X028 | Employment status (original format) | <0-DK/NA/M; 1—Full time; 2—Part-time; 3—Self employed; 4—Retired; 5—Housewife; 6-Students; 7-Unemployed; 8-Other; |
| X028nt | Same as above, but with a reversed scale and with null and DK/NA/M treatment (X028nt $=8$-X028 if X028! $=. \&$ X028 > 0 \& X028 < 9) | Null (.)-DK/NA/M; 7-Full time . . 0-Other; |
| X047_WVS | The scale of incomes (original format) | <0-DK/NA/M; 1—Lowest step; 2—Second step . . 10-Tenth step; 11-Highest step; |
| X047nt | Same as above, but with null and DK/NA/M treatment (X047nt = X047_WVS if X047_WVS! = . \& X047_WVS > 0) | Null (.)-DK/NA/M; 1—the lowest step . . . 11-the highest one; |
| X048WVS | The region where the interview was conducted (original format) | <0-DK/NA/M; 8001—Albania: Tirana . . 7360013 SD: Nile River; |
| X048WVSnt | Same as above, but with null and DK/NA/M treatment (X048WVSnt = X048WVS if X048WVS! $=$. \& X048WVS > 0) | Null (.)-DK/NA/M; 8001—Albania: Tirana ... 7360013 SD: Nile River; |
| X049 | Settlement size (original format) | <0-DK/NA/M; 1—Under 2000; 2—2000-5000; 3-5000-10,000; 4—10,000-20,000; 5-20,000-50,000; 6-50,000-100,000; 7-100,000-500,000; 8-500,000 and more; |
| X049nt | Same as above, but with null and DK/NA/M treatment (X049nt = X049 if X049! = . \& X049 > 0) | Null (.)-DK/NA/M; 1—Under 2000 . . 8-500,000 and more; |
| S020 | Year of survey (original format-no need for null and DK/NA/M treatment because of its values) | Years between 1981 and 2020 (limited to 2017-2020 for non-NULL observations corresponding to the response variable). |
| Source: WVS's data available at https:/ /www.worldvaluessurvey.org/WVSDocumentationWVL.jsp-last accessed on the 1 October 2021 (The Stata script used for recoding the remaining variables before the 3rd selection round, available online at https:/ / drive.google.com/u/0/uc?id=16YEJm7zX5G1nE2b014YTD_g7WVfhM7MX\&export=download, last accessed on 1 December 2021). |  |  |

Table A2. Descriptive statistics for the most relevant WVS items used in this study.

| Variable | n | Mean | Std.Dev. | Min | 0.25 | Median | 0.75 | Max |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| H010nt | 74,410 | 1.12 | 1.07 | 0 | 0 | 1 | 2 | 3 |
| H010bin | 74,410 | 0.36 | 0.48 | 0 | 0 | 0 | 1 | 1 |
| A106Cnt | 164,147 | 0.18 | 0.51 | 0 | 0 | 0 | 0 | 2 |
| A124_02nt | 404,615 | 0.17 | 0.37 | 0 | 0 | 0 | 0 | 1 |
| C001nt | 401,680 | 0.96 | 0.91 | 0 | 0 | 1 | 2 | 2 |
| C041nt | 180,765 | 2.62 | 1.16 | 0 | 2 | 3 | 3 | 4 |
| D026_03nt | 77,074 | 2.29 | 1.24 | 0 | 1 | 3 | 3 | 4 |
| D059nt | 363,866 | 1.52 | 0.98 | 0 | 1 | 1 | 2 | 3 |
| D060nt | 370,788 | 1.03 | 0.92 | 0 | 0 | 1 | 1 | 3 |
| E069_11nt | 368,598 | 1.42 | 0.95 | 0 | 1 | 1 | 2 | 3 |
| E228nt | 221,410 | 4.55 | 3.2 | 0 | 1 | 4 | 7 | 10 |
| E233Bnt | 160,117 | 5.97 | 3.03 | 0 | 4 | 6 | 9 | 10 |
| E236nt | 227,784 | 6.18 | 2.54 | 1 | 5 | 6 | 8 | 10 |
| E262Bnt | 160,550 | 2.01 | 1.81 | 0 | 0 | 2 | 4 | 4 |
| F118nt | 386,945 | 3.26 | 3.07 | 1 | 1 | 1 | 5 | 10 |
| F120nt | 404,884 | 3.41 | 2.87 | 1 | 1 | 2 | 5 | 10 |
| F121nt | 409,708 | 4.68 | 3.1 | 1 | 1 | 5 | 7 | 10 |
| H002_01nt | 158,241 | 0.88 | 0.91 | 0 | 0 | 1 | 1 | 3 |
| H009nt | 75,219 | 1.74 | 1.09 | 0 | 1 | 2 | 3 | 3 |
| H011nt | 74,712 | 1.06 | 1.07 | 0 | 0 | 1 | 2 | 3 |
| X025A_01nt | 77,493 | 3.49 | 2.03 | 0 | 2 | 3 | 5 | 8 |
| X001nt | 427,664 | 1.52 | 0.5 | 1 | 1 | 2 | 2 | 2 |
| X003nt | 427,922 | 41.22 | 16.25 | 13 | 28 | 39 | 53 | 103 |
| X007nt | 427,294 | 3.34 | 2.18 | 0 | 1 | 5 | 5 | 5 |
| X007bin | 427,294 | 0.64 | 0.48 | 0 | 0 | 1 | 1 | 1 |
| X011nt | 416,851 | 1.79 | 1.57 | 0 | 0 | 2 | 3 | 5 |
| X028nt | 419,713 | 4.7 | 2.16 | 0 | 3 | 5 | 7 | 7 |
| X047nt | 395,124 | 4.67 | 2.29 | 1 | 3 | 5 | 6 | 10 |
| X049nt | 307,270 | 4.96 | 2.51 | 1 | 3 | 5 | 7 | 8 |
| S020 | 432,482 | 2005.26 | 9.67 | 1981 | 1998 | 2006 | 2012 | 2020 |

Source: Own calculation in Stata 16MP 64-bit using WVS's data and the Univar command (The Stata script available at https:/ / drive.google.com/u/0/uc?id=1d8TQp10Wf2raIzGJ92e3
eYgC0YKC0qRE\&export=download, last accessed on 1 December 2021).

Table A3. The results of cross-validations on some sociodemographic variables using mixed-effects binary and ordered logistic regressions.

| Model | ${ }^{(1)}$ | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Input/Response | H010bin | H010bin | H010bin | H010bin | H010bin | H010bin | H010bin | H010bin | H010bin | H010nt | H010nt | H010nt | H010nt | H010nt | H010nt | H010nt | H010nt | H010nt |
| A106Cnt | 0.1901 *** | 0.1897 *** | 0.1907 *** | 0.1903 **********) | 0.1876 *********) | 0.1877 ****** | 0.1873 ******* | $0.1634{ }^{\text {**** }}$ | 0.1816 *** | 0.1158 ** | 0.1146 *** | 0.1149 *** | 0.1146 *** | 0.1153 *** | 0.1140 *** | 0.1135 *** | 0.1047 **** | $0^{0.1143 * * * * * * *)}$ |
|  | (0.0439) | (0.0212) | (0.0145) |  |  |  |  |  |  |  |  | (0.0040) | (0.0044) | (0.0246) | (0.0153) | (0.0153) | (0.0217) | (0.0213) |
| A124_02nt | $\begin{aligned} & 0.280 \times * * \\ & (0.015) \end{aligned}$ | $0.2352 * * *$ <br> (0.0359) | 0.2268 ** | $0.2277^{* * *}$ <br> (0.0014) | 0.2279 *** <br> (0.0642) | 0.2233 *** | $0.2287^{* * *}$ <br> (0.0335) | $0.1554 * * *$ (0.0411) | $\begin{aligned} & 0.233^{2} \\ & (0.1134) \\ & (0) \end{aligned}$ | 0.1429 *** | 0.1421 ** (0.0253) | $0.1436 * * *$ (0.0333) | $0.1444^{* * *}$ (0.0009) | 0.1471 * | 0.1397 ** | 0.1431 *** (0.0173) |  | (0.1468 |
| C041nt | 0.0808 *** | 0.0804 *** | $0.0805 * * *$ | 0.0803 *** | $0.0817{ }^{* * *}$ | $0.0813 * *$ | 0.0819 ** | $0.0722 * *$ | $0.0784 * * *$ | $0.0583 * *$ | 0.0570 *** | $0.0573{ }^{* * *}$ | $0.0571^{* * *}$ |  |  | ${ }_{0} 0.0591 * * *$ | ${ }_{0} 0.0585{ }^{\text {**** }}$ |  |
|  | (0.0012) | (0.0130) | (0.0162) | (0.0239) | (0.0065) | (0.0154) | (0.0109) | (0.0142) | (0.0165) | (0.0045) | (0.0080) | ${ }^{(0.0115)}$ | (0.0152) | (0.0058) | ${ }^{(0.0152)}$ | (0.0069) | (0.0109) | (0.0144) |
| D026_3nt | 0.0972 *** | ${ }^{0.0970 ~ * * *}$ | 0.0967 *** | 0.0971 1** | 0.0978 *** | ${ }^{0.0951 ~ * * * *}$ | 0.0955 *** | 0.0884 *** | ${ }^{0.0963 * * * *}$ | 0.0845 *** | 0.0838 *** | 0.0832 *** | $0.0836{ }^{* * *}$ | $0.0828{ }^{* * *}$ | 0.0832 *** | $0.0824 * * *$ | 0.0752 *** | 0.0849 *** |
|  | ${ }^{(0.0116)}$ | ${ }^{(0.0112)}$ | ${ }^{(0.0139)}$ | ${ }^{(0.0016)}$ | ${ }^{(0.0045)}$ | ${ }^{(0.0059)}$ | ${ }^{(0.0075)}$ | ${ }^{(0.0149)}$ | ${ }^{(0.0080)}$ |  | ${ }^{(0.0084)}$ | ${ }^{(0.0150)}$ | ${ }^{(0.0115)}$ | ${ }^{(0.0083)}$ | ${ }^{(0.0060)}$ | ${ }^{(0.0064)}$ | ${ }^{(0.0113)}$ | ${ }^{(0.0102)}$ |
| E069_11nt | $\begin{aligned} & 0.1193 * * * \\ & (0.0043) \end{aligned}$ | ${ }_{(0.1196 \text { *** }}^{0.0129)}$ | $\begin{gathered} 0.1170 * * * \\ (0.0159) \end{gathered}$ | $\begin{gathered} 0.1182 * * * \\ (0.0231) \end{gathered}$ | ${ }_{(0.0154)}^{0.1194 * *}$ | $0.1184^{* * *}$ | ${ }_{(0.11974 * *)}^{(0.0143)}$ | $0.1063^{* * *}$ (0.0202) | 0.1144 *** <br> (0.0226) | $\begin{gathered} 0.1323 * * * \\ (0.0024) \end{gathered}$ | $\begin{gathered} 0.1320 * * * * * * * \\ (0.0087) \end{gathered}$ | 0.1312 *** | $\underset{\substack{0.1322 * * * \\(0.0110)}}{0}$ | $\underset{\substack{0.1333 * * * \\(0.0108)}}{(0.0}$ | $\underset{\substack{0.1316 * * * \\(0.0113)}}{(0.00}$ | $\underset{\substack{0.1327 * * * \\(0.0080}}{0.0}$ | $\underset{\substack{0.1038 ~ * 04 *)}}{(0.0142}$ | $\underset{\substack{0.1280 * * \\(0.0169)}}{(0.080}$ |
| E228nt | 0.0188 ** | 0.0188 *** | 0.0189 ** | 0.0187 * | 0.0179 * | $0.0184^{*}$ | 0.0190 *** | $0.0294 * *$ | 0.0173 | 0.0133 | 0.0136 *** | 0.0138 * | 0.0137 | $0.0133^{*}$ | 0.0129 * | $0.0132 * * *$ | 0.0249 *** | ${ }_{0} .0133 *$ |
|  | (0.0069) | (0.0045) | (0.0063) | (0.0087) | (0.0075) | (0.0074) | (0.0044) | (0.0060) | (0.0105) | (0.0077) | (0.0035) | (0.0057) | (0.0072) | (0.0059) | (0.0058) | (0.0037) | (0.0047) | (0.0065) |
| E233Bnt | ${ }^{0.02614 * * *}$ | ${ }^{0.02564 * * *}$ | ${ }^{0.02620 ~ * * *}$ | ${ }^{0.02623 * * *}$ | ${ }_{0}^{0.02655 * * *}$ | ${ }^{0.0258 * *}$ | ${ }^{0.0261 * * *}$ | ${ }^{0.0230 * * *}$ | ${ }^{0} .0233^{* * *}$ | ${ }^{0.0142 * *}$ | ${ }^{0.01414 * * *}$ | ${ }^{0.01433 * * *}$ | ${ }^{0.0144 * * * *}$ | ${ }^{0.0143 * * *}$ | ${ }^{0.00143}$ | ${ }^{0.0143 * * *}$ | ${ }^{0.01688 * * *}$ | ${ }^{0.0135}$ |
|  | (0.0061) | ${ }^{(0.0046)}$ | (0.0030) | (0.0036) | (0.0050) | ${ }^{(0.0120)}$ | ${ }^{(0.0058)}$ | (0.0056) |  |  |  | ${ }^{(0.0035)}$ |  |  |  |  |  |  |
| E236nt | $\begin{aligned} & 0.0201 \\ & (0.0121) \end{aligned}$ |  | $\begin{aligned} & 0.0197 \\ & (0.011) \end{aligned}$ | $\begin{aligned} & 0.0098 \\ & (0.0103) \\ & \hline \end{aligned}$ | $\begin{aligned} & 0.02020^{2} \\ & (0.0095) \end{aligned}$ | $\begin{gathered} 0.01977^{* * * * * *} \\ (0.0054) \end{gathered}$ | $0.0187^{* * *}$ $(0.0048)$ | $\begin{aligned} & 0.0207 \text { 00 } \\ & \\ & \hline 0.0064) \end{aligned}$ |  | 0.0192 ** <br> (0.0027) | 0.0196 *** (0.0033) | $0.0188{ }^{0}$ $(0.0069)$ | 0.0190 *** (0.0051) | 0.0195 ** (0.0070) | 0.0193 *** (0.0032) | $0.0180^{* * *}$ (0.0035) | $\underset{(0.0051)}{0.0172 \text { *** }}$ | $0.0192^{* * *}$ (0.0024) |
| E262Bnt |  | ${ }^{-0.1066 * * * *}$ | ${ }^{-0.1042 * * *}$ | -0.1045 *** <br> (0.0091) | $-0.1058^{* * *}$ (0.0101) | $\xrightarrow{-0.10533^{* * *}}(0.0089)$ | $\xrightarrow{-0.1061 \text { **** }}$ | -0.0843 *** | $-0.0976^{* * *}$ | $-0.0845^{* * *}$ | $\underset{\substack{-0.0854 * * * * \\(0.0061)}}{(0.010}$ | $\xrightarrow{-0.0844 * * *}$ | -0.0847 *** | -0.0863 *** (0.0069) | $-0.0867^{* * *}$ | -0.0865 *** (0.0037) | $\xrightarrow{-0.0695 \text { **** }}$ | -0.0815 *** (0.0064) |
| H002_01nt |  |  | $0.0384 *$ | 0.0371 | $0.0346 *$ | $0.0346 *$ | ${ }_{0.0348 * *}$ | $0.0432 *$ | 0.0445 ** | $-0.0163 * * *$ | ${ }_{-0.0146}$ | -0.0146 | ${ }_{-0.0158}$ | -0.0190 | -0.0157 | ${ }_{-0.0168}$ |  | ${ }_{-0.0115}$ |
|  | (0.0088) | (0.0139) | (0.0156) | (0.0224) | (0.0174) | (0.0167) | (0.0170) | (0.0175) | (0.0145) | (0.0015) | (0.0116) | (0.0094) | (0.0116) | (0.0142) | (0.0130) | (0.0144) | (0.0132) | (0.0158) |
| H009nt | 0.8005 *** | 0.7987 *** | 0.7996 *** | 0.7995 *** | 0.7992 *** | 0.7979 *** | 0.8000 *** | 0.7801 *** | 0.7890 *** | 0.7864 *** | 0.7864 *** | 0.7856 *** | 0.7857 *******) | 0.7887 *** | 0.7849 *** | 0.7874 *** | 0.7690 ** | 0.7886 *** |
|  | (0.0314) | (0.0154) | (0.0207) | (0.0184) | (0.0198) | (0.0162) | (0.0121) | (0.0220) | (0.0160) | (0.0164) | (0.0110) | (0.0308) | (0.0251) | (0.0175) | (0.0212) | (0.0135) | (0.0191) | (0.0198) |
| H011nt | $\underset{\substack{1.00111^{* * *} \\(0.0012)}}{(0001}$ | ${ }_{(0.0187}^{1.0004 \times * *}$ | $\underset{(0.0}{1.00088 * *}$ | 1.0011 *** <br> (0.0030) | $\underbrace{0.9967 * *}_{(0.0107}$ | $\underset{\substack{1.00233^{* * *} \\(0.0401)}}{\text { a }}$ | ${ }_{(0)}^{0.99994 * * *}$ | $\underset{(0.0312)}{1.0407 \times *}$ | ${ }_{(0.08951)}^{0.9892 * *}$ | $\underbrace{}_{\substack{1.1275 * * * * \\(0.0193)}}$ | $\underset{\substack{\text { c/i.1246** } \\(0.0212)}}{ }$ |  | ${ }_{(0.0253)}^{1.12655^{* * *}}$ | $\underset{\substack{1.12393 * * * \\(0.0224)}}{(0)}$ | $\underset{\substack{1.1273 * * * \\(0.0746)}}{(0)}$ | $\underset{\substack{1.1252 * * * \\(0.0458)}}{(0)}$ | $\underset{\substack{1.1536 * * * * * *)}}{(0.0407}$ |  |
| X025A_01nt | -0.0524 *** | $-0.0517{ }^{\text {7**** }}$ | ${ }^{-0.0530 * * * *}$ | ${ }^{-0.05252 * * *}$ | -0.0535 *** | ${ }^{-0.0479 \text { *** }}$ | ${ }^{-0.05283 * * *}$ | ${ }^{-0.048277 *}$ | ${ }^{-0.04399 * * * *}$ | ${ }^{-0.0312 * * *}$ | -0.0319 *** | -0.0322 *** | -0.0319 *** | -0.0337 **** | -0.0301 ***** | -0.0327 *** | -0.0315 *** | -0.0311 *** |
|  | (0.0124) | (0.0074) | (0.0048) | (0.0005) | (0.0111) | (0.0088) | (0.0053) | (0.0077) | (0.0075) | (0.0097) | (0.0057) | (0.0061) | (0.0010) | (0.0996) | (0.0078) | (0.0035) | (0.0058) | (0.0065) |
| C001nt | $\underset{(0.129601)}{0.129 *}$ | ${ }_{(0.0166)}^{0.1293 * *}$ | $\underset{(0.0121)}{0.1273 * *}$ |  | ${ }_{(0.1295}^{0.1295 *}$ | $\underset{(0.0099)}{0.1291 * *}$ | ${ }_{\text {O }}^{0.129004 *}$ | ${ }_{(0}^{0.0927 * *}$ | $\underbrace{0.1241 * *}_{(0.0235)}$ | ${ }_{(0.0058)}^{0.0911 * * *}$ | $\underset{(0.0126)}{0.095 * *}$ |  | $\underset{(0.0068)}{0.0901 * *}$ | ${ }_{(0}^{0.0901 * * *}$ | ${ }_{\substack{0 \\ 0.08763 * \\(0.0083)}}$ | ${ }_{\text {c }}^{0.08997 * *}$ | $\underset{(0.0140)}{0.0479 * *}$ | $\underbrace{0.0903 * * *}_{(0.0132)}$ |
| D059nt | ${ }^{0.0189}$ | ${ }^{0.00192}$ | ${ }^{0.00178}$ | ${ }^{0.01888 * * *}$ | ${ }^{0.0201}$ | ${ }^{0.0196}$ | ${ }^{0.00190}$ | ${ }^{0.0349}$ | ${ }^{0.00158}$ | ${ }^{0.0331}$ | 0.0316 ** | $0^{0.03055 * * * * * *)}$ | ${ }^{0.0313 * *}$ | ${ }^{0.03393 *}$ | ${ }^{0.0328 * *}$ | ${ }^{0.0322 * *}$ | 0.0369 ** | 0.0290* |
|  | (0.0376) | (0.0151) | (0.0125) | (0.0005) | (0.0104) | (0.0118) | (0.0171) | (0.0186) | (0.0135) | (0.0416) | (0.0122) | (0.0080) | (0.0107) | (0.0132) | (0.0163) | (0.0127) | (0.0140) | (0.0124) |
| D060nt | ${ }_{(0.0017)}^{0.0693 *}$ | ${ }_{(0.0167)}^{0.06987 \%}$ |  |  | ${ }_{(0.0166)}^{0.06924}$ | ${ }_{(0.0175)}^{0.0619}$ | (0.070097) | ${ }_{\text {c }}^{0} 0.0923$ (0.0191) |  | ${ }_{\text {(0.0057) }}^{0}$ | ${ }_{(0.0140)}^{0.09474 *}$ | ${ }_{\text {(0) }}^{0.0062311)}$ | ${ }_{(0.0161)}^{0.09564 *}$ | ${ }_{(0.0157)}^{0.09547}$ | (0.0248) | ${ }_{(0)}^{0.095659}$ | ${ }_{(0.0154)}^{0.1014 * *}$ |  |
| F18nt | -0.0230 *** | $-0.0226^{* * *}$ | $-0.0226^{* * *}$ | -0.0230 *** | $\begin{gathered} -0.0234 * * \\ (0.0074) \end{gathered}$ | $-0.0230^{* * *}$ | $-0.0227^{* * *}$ (0.0061) | $-0.0092$ | $-0.0238^{* * *}$ | $-0.0171^{* * *}$ | $-0.0172^{* * *}$ (0.0033) | $-0.0164^{* * *}$ <br> (0.0016) | $-0.0167^{* * *}$ | -0.0171 *** | -0.0171 *** | -0.0167 *** | -0.0072 | $\begin{gathered} -0.0174 \text { ** }^{-0.0061)} \\ \hline \end{gathered}$ |
| F120nt | 0.0092 | 0.0090 | 0.0088 | 0.0090 | 0.0094 | 0.0109 | 0.0098 | $0.014{ }^{*}$ | 0.0097 | 0.0176 ** | 0.0171 ** | 0.0170 *** | 0.0172* | 0.0168 | 0.0182 | 0.0172 ** | $0.0168{ }^{* *}$ | $0.0173 * * *$ |
|  | (0.0066) | (0.0048) | (0.0089) | (0.0134) | (0.0070) | (0.0071) | (0.0085) | (0.0070) | (0.0055) | (0.0031) | (0.0035) | (0.0047) | (0.0078) | (0.0052) | (0.0043) | (0.0064) | (0.0054) | (0.0047) |
| F121nt | $-0.0470^{* * *}$ | -0.0467 *** | $-0.0464^{* * *}$ | $-0.0466{ }^{* * *}$ | -0.0468 *** | -0.0467 *** | $-0.0466^{* * *}$ | -0.0352 *** | -0.0456*** | ${ }^{-0.0487 * * *}$ | -0.0483 *** | -0.0482 *** | -0.0485 *** | -0.0482 *** | $-0.0480^{* * * *}$ | -0.0478 *** | -0.0350 *** | -0.0476 *** |

Table A3. Cont.

| Model | ${ }^{(1)}$ | (2) | ${ }^{(3)}$ | ${ }^{(4)}$ | (5) | ${ }^{(6)}$ | (7) | (8) | (9) | (10) | (1) | (12) | (13) | (14) | (15) | (16) | (17) | (18) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| -cons - | $\begin{gathered} (0.0074) \\ -3.966 * * * \\ (0.0562) \end{gathered}$ | $\begin{gathered} (0.0047) \\ -(3.914 \times * * \\ (0.0751) \end{gathered}$ | $\begin{gathered} (0.0061) \\ -3.9337 * * * \\ (0.0831) \end{gathered}$ | $\begin{gathered} (0.0084) \\ -3.9210 * * * \\ (0.0614) \end{gathered}$ | $\begin{gathered} (0.0046) \\ -(3.9550 \times \pi \\ (0.1029) \end{gathered}$ | $\begin{aligned} & \hline(0.00977 \\ & -(0.9151 \times *) \\ & (0.1079) \end{aligned}$ | $\begin{gathered} (0.0063) \\ -3.9003 \times *) \\ (0.0721) \end{gathered}$ | $\begin{gathered} (0.0060) \\ -4.1379 * * * \\ (0.1150) \end{gathered}$ | $\begin{gathered} (0.0061) \\ -3.8667 * * \\ (0.1223) \end{gathered}$ | (0.0052) | (0.0029) | (0.0038) | (0.0050) | ${ }^{(0.0045)}$ | (0.0045) | (0.0061) | (0.0050) | (0.0048) |
| ${ }_{\operatorname{var}\left(\_c o n s[X 001 n t]\right]}$ | $\left.\begin{array}{c} 0.0000 \\ (0.0000 \end{array}\right)$ |  |  |  |  |  |  |  |  | $\underset{(0.000602)}{0.00}$ |  |  |  |  |  |  |  |  |
| var_cons[X003nt]) |  | $\begin{gathered} 0.0010 \\ (0.0024) \end{gathered}$ |  |  |  |  |  |  |  |  | $\begin{gathered} 0.0005 \\ (0.0009) \end{gathered}$ |  |  |  |  |  |  |  |
| var_cons[X007nt]) |  |  | $\stackrel{0.0012 \times * *}{(0.0004)}$ |  |  |  |  |  |  |  |  | $\begin{gathered} 0.0006 \\ (0.0004) \\ \hline(0) \end{gathered}$ |  |  |  |  |  |  |
| var(_cons[X007bin]) |  |  |  | $\begin{gathered} 0.0008 \\ (0.0006) \end{gathered}$ |  |  |  |  |  |  |  |  | $\begin{gathered} 0.0002 \\ (0.0003) \end{gathered}$ |  |  |  |  |  |
| var_cons[X011nt]) |  |  |  |  | $\begin{gathered} 0.0009 \\ (0.0008) \end{gathered}$ |  |  |  |  |  |  |  |  | 0.0004 $(0.0002)$ |  |  |  |  |
| var_cons[X028nt]) |  |  |  |  |  | $\begin{gathered} 0.00377^{0} \\ (0.0015) \end{gathered}$ |  |  |  |  |  |  |  |  | $\begin{gathered} 0.0038 \\ (0.0020) \end{gathered}$ |  |  |  |
| var_cons[X047nt]) |  |  |  |  |  |  | $\begin{gathered} 0.0019 \\ (0.0015) \\ (0.0 \end{gathered}$ |  |  |  |  |  |  |  |  | 0.0014 ** |  |  |
| var_cons[X048WVSn |  |  |  |  |  |  |  | $\begin{gathered} 0.3928 \\ (0.045) \end{gathered}$ |  |  |  |  |  |  |  |  | $\begin{gathered} 0.3348 \\ (0.039 \\ \hline \text { v** } \end{gathered}$ |  |
| var(_cons[X049nt]) |  |  |  |  |  |  |  |  | $\begin{aligned} & 0.0172 \\ & (0.0091) \\ & \hline(0) \end{aligned}$ |  |  |  |  |  |  |  |  | $\begin{aligned} & 0.0074 \\ & (0.0049) \end{aligned}$ |
| N |  | 54,979 | 55,073 | 55,073 | 54,683 | 54,873 | 54,005 | 55,174 | 52,708.0000 | 55,188 | 54,979 | 55,073 |  |  | 54,873 | 54,605 | 55,174 | 52,708.0000 |
| ${ }_{\text {AIC }}$ | 46,502.417 | 46,404.349 | 46,403.937 | 46,396.022 | 46,129.232 | 46,243.84 | 46,065.607 | 45,197.61 | 44,482.1291 | ${ }^{108,731.986}$ | 108,418.235 | ${ }^{108,541.445}$ | ${ }^{108,535.959}$ | ${ }^{107,745.234}$ | ${ }^{108,124.374}$ | ${ }^{107,675.088}$ | ${ }^{106,348.426}$ | 103,955.9908 |
| BIC 4 | 46,511.336 | 46,591.558 | 46,457.435 | 46,404.939 | 46,182.688 | 46,315.142 | 46,154.685 | 45,384.893 | 44,553.1093 | 108,740.905 | 108,623.273 | 108,594.944 | 108,553.791 | 107,789.781 | 108,195.676 | 107,764.166 | 106,553.546 | 104,026.9710 |

Source: Own calculation in Stata 16MP 64-bit using WVS's data. Notes: var (_cons []) on the left relates to the cross-validation criterion used. Robust standard errors are between round parentheses. The raw coefficients above parentheses emphasized using ${ }^{*}, * *$, and ${ }^{* * *}$ are significant at $5 \%, 1 \%$, and $1 \%$, respectively. (The Stata script used for generating this table is available online at https:/ / drive.google.com/u/0/uc?id=111Disk55Lf2xcnZxZNAVVQq1oP7azNjG\&export=download, last accessed on 1 December 2021). Colors are used to emphasize the remaining variables (green) and the ones not selected (red).

Table A4. The results of the first stage of reverse causality checks using ordered logit.

| Model | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) | (19) | (20) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Input/ Response | H010nt | A106Cnt | H010nt | C001nt | H010nt | C041nt | H010nt | D026_03nt | H010nt | D060nt | H010nt | E069_11nt | H010nt | E262Bnt | H010nt | F121nt | H010nt | H009nt | H010nt | H011nt |
| A106Cnt | $\begin{gathered} 0.2635 \\ * * * \\ (0.0131) \end{gathered}$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| C001nt |  |  | $\begin{aligned} & 0.4728 \\ & * * * \\ & (0.0076) \end{aligned}$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| C041nt |  |  |  |  | $\begin{gathered} 0.3198 \\ (0 * * \\ (0.0062) \end{gathered}$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| D026_03nt |  |  |  |  |  |  | $\begin{gathered} 0.3561 \\ * * * \\ (0.0059) \end{gathered}$ |  |  |  |  |  |  |  |  |  |  |  |  |  |
| D060nt |  |  |  |  |  |  |  |  | $\begin{gathered} 0.4486 \\ (0 * * 003) \\ \left(\begin{array}{c} 0.0083 \end{array}\right. \end{gathered}$ |  |  |  |  |  |  |  |  |  |  |  |
| E069_11nt |  |  |  |  |  |  |  |  |  |  | $\begin{aligned} & 0.4178 \\ & * * * \\ & (0.0075) \end{aligned}$ |  |  |  |  |  |  |  |  |  |
| E262Bnt |  |  |  |  |  |  |  |  |  |  |  |  | $\begin{gathered} -0.1727 \\ (0 * * \\ (0.0040) \end{gathered}$ |  |  |  |  |  |  |  |
| F121nt |  |  |  |  |  |  |  |  |  |  |  |  |  |  | $\begin{gathered} -0.1301 \\ * * * \\ (0.0023) \end{gathered}$ |  |  |  |  |  |
| H009nt |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | $\begin{gathered} 1.0775 \\ * * * \\ (0.0084) \end{gathered}$ |  |  |  |
| H011nt |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | $\begin{gathered} 1.4765 \\ * * * \\ (0.0109) \end{gathered}$ |  |
| H010nt |  | $\begin{gathered} 0.2011 \\ * * * \\ (0.0097) \\ \hline \end{gathered}$ |  | $\begin{gathered} 0.4353 \\ * * * \\ (0.0070) \\ \hline \end{gathered}$ |  | $\begin{gathered} 0.3792 \\ * * * \\ (0.0066) \\ \hline \end{gathered}$ |  | $\begin{gathered} 0.4299 \\ * * * \\ (0.0068) \\ \hline \end{gathered}$ |  | $\begin{gathered} 0.3610 \\ * * * \\ (0.0071) \\ \hline \end{gathered}$ |  | $\begin{gathered} 0.3767 \\ * * * \\ (0.0070) \\ \hline \end{gathered}$ |  | $\begin{gathered} -0.3104 \\ * * * \\ (0.0068) \\ \hline \end{gathered}$ |  | $\begin{gathered} -0.3842 \\ * * * \\ (0.0066) \\ \hline \end{gathered}$ |  | $\begin{gathered} 1.0664 \\ * * * \\ (0.0084) \\ \hline \end{gathered}$ |  | $\begin{gathered} 1.4952 \\ * * * \\ (0.0111) \\ \hline \end{gathered}$ |
| N | 72,451 | 72,451 | 73,993 | 73,993 | 73,954 | 73,954 | 73,583 | 73,583 | 73,514 | 73,514 | 73,166 | 73,166 | 72,327 | 72,327 | 73,355 | 73,355 | 73,998 | 73,998 | 73,813 | 73,813 |
| Chi^2 | 404.2073 | 430.0434 | 3832.428 | 3911.895 | 2673.802 | 3262.856 | 3590.434 | 4040.7353 | 2926.924 | 2594.26 | 3078.888 | 2897.7012 | 1818.815 | 2099.86 | 3168.157 | 3397.855 | 16,602.02 | 16,019.41 | 18,228.82 | 18,004.89 |
| p | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| R^2 | 0.0023 | 0.0058 | 0.0207 | 0.0285 | 0.015 | 0.0163 | 0.0209 | 0.0202 | 0.0171 | 0.0169 | 0.0182 | 0.0173 | 0.0102 | 0.0121 | 0.0181 | 0.0121 | 0.1178 | 0.1127 | 0.1901 | 0.1936 |
| AIC | 192,332.9 | 74,666.17 | 192,524.6 | 145,055.7 | 193,522.1 | 213,564 | 191,461.5 | 221,397.92 | 192,014.8 | 174,870.9 | 190,848.2 | 193,132.85 | 190,358.2 | 183,273.8 | 191,512.1 | 307,453.7 | 173,488.4 | 177,413.1 | 158,760.7 | 155,388.6 |
| BIC | 192,369.6 | 74,693.74 | 192,561.5 | 145,083.4 | 193,558.9 | 213,610.1 | 191,498.3 | 221,443.96 | 192,051.6 | 174,907.7 | 190,885 | 193,169.65 | 190,394.9 | 183,319.8 | 191,549 | 307,545.7 | 173,525.2 | 177,450 | 158,797.5 | 155,425.5 |

Source: Own calculation in Stata 16MP 64-bit using WVS's data. Notes: Robust standard errors are between round parentheses. The raw coefficients above parentheses emphasized using *** are significant at $1 \%$. (The Stata script used for generating this table is available online at https:/ /drive.google.com/u/0/uc?id=1988H965IWa-QN-AVTPSnS6xXfrHL56Ns\&export= download, last accessed on 1 December 2021). Colors, italics and underline are applied to emphasize those variables needing an additional causality check. Bold text: to emphasize better scores for each pair of two columns.

Table A5. The results of the second stage of reverse causality checks using binary logit.

| Model | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Input/Response | H010bin | C041bin | H010bin | C041bin | H010bin | D060bin | H010bin | D060bin |
| C041nt | $\begin{gathered} 0.3776 * * * \\ (0.0072) \end{gathered}$ |  |  |  |  |  |  |  |
| C041bin |  |  | $\begin{gathered} 0.8160 \text { *** } \\ (0.0162) \end{gathered}$ |  |  |  |  |  |
| D060nt |  |  |  |  | $\begin{gathered} 0.4316^{* * *} \\ (0.0088) \end{gathered}$ |  |  |  |
| D060bin |  |  |  |  |  |  | $\begin{gathered} 0.8426 \text { *** } \\ (0.0178) \end{gathered}$ |  |
| H010nt |  | $\begin{gathered} 0.3721 \text { *** } \\ (0.0071) \end{gathered}$ |  |  |  | $\begin{gathered} 0.4219 \text { *** } \\ (0.0082) \end{gathered}$ |  |  |
| H010bin |  |  |  | $\begin{gathered} 0.8160 \text { *** } \\ (0.0162) \end{gathered}$ |  |  |  | $\begin{gathered} 0.8426^{* * *} \\ (0.0178) \end{gathered}$ |
| _cons | $\begin{gathered} -1.5546 \text { *** } \\ (0.0207) \end{gathered}$ | $\begin{gathered} -0.1084 * * * \\ (0.0108) \end{gathered}$ | $\begin{gathered} -1.0843 \text { *** } \\ (0.0130) \end{gathered}$ | $\begin{aligned} & 0.0191 * \\ & (0.0092) \end{aligned}$ | $\begin{gathered} -1.0408 \text { *** } \\ (0.0124) \end{gathered}$ | $\begin{gathered} -1.72888^{* * *} \\ (0.0143) \end{gathered}$ | $\begin{gathered} -0.7986 \text { **** } \\ (0.0091) \end{gathered}$ | $\begin{gathered} -1.5445 * * * \\ (0.0121) \end{gathered}$ |
| N | 73,954 | 73,954 | 73,954 | 73,954 | 73,514 | 73,514 | 73,514 | 73,514 |
| Chi^2 | 2725.804 | 2750.781 | 2523.5227 | 2523.5228 | 2380.0361 | 2676.8774 | 2232.7201 | 2232.7204 |
| p | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| R^2 | 0.0314 | 0.027 | 0.0273 | 0.026 | 0.0259 | 0.0343 | 0.0233 | 0.028 |
| AIC | 93,307.504 | 98,201.668 | 93,702.834 | 98,298.75 | 93,319.924 | 76,806.588 | 93,568.675 | 77,305.442 |
| BIC | 93,325.926 | 98,220.091 | 93,721.256 | 98,317.173 | 93,338.335 | 76,824.999 | 93,587.086 | 77,323.852 |
| Pearson Chi^2 GOF | 177.65 | 720.56 | 0.00 | 0.00 | 122.74 | 1.68 | 0.00 | 0.00 |
| p GOF | 0.0000 | 0.0000 | . |  | 0.0000 | 0.4313 | ${ }^{\text {b }}$. | . |
| AUCROC | 0.6184 | 0.599 | 0.5963 | 0.5903 | 0.597 | 0.6248 | 0.5778 | 0.6003 |

Source: Own calculation in Stata 16MP 64-bit using WVS's data. Notes: Robust standard errors are between round parentheses. The raw coefficients above parentheses emphasized using * and ${ }^{* * *}$ are significant at $5 \%$ and $1 \%$. (The Stata script used for generating this table is available online at https://drive.google.com/u/0/uc?id=1-uu1S8N9a-MOcCENQPJfKLtdc2 WbzB9I\&export=download, last accessed on 1 December 2021). Colors are applied to emphasize the remaining variables (green) and the ones not selected (red) after this 2 nd round of reverse causality checks. Bold text: to emphasize better scores for each pair of two columns.

Table A6. No collinearity issues being identified for either influences or predictors using Ordinary Least Squares regressions and both forms of the response variable.

| Model | (1) | (2) | (3) | (4) | (5) | (6) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Input/Response | H010bin | H010bin | H010bin | H010nt | H010nt | H010nt |
| A106Cnt | $\begin{gathered} 0.0284^{* * *} \\ (0.0028) \end{gathered}$ | $\begin{gathered} 0.0363 \text { *** } \\ (0.0029) \end{gathered}$ |  | $\begin{gathered} 0.0502 * * * \\ (0.0060) \end{gathered}$ | $\begin{gathered} 0.0715^{* * *} \\ (0.0064) \end{gathered}$ |  |
| C001nt | $\begin{gathered} 0.0240^{* * *} \\ (0.0019) \end{gathered}$ | $\begin{gathered} 0.0413^{* * *} \\ (0.0019) \end{gathered}$ |  | $\begin{gathered} 0.0505 * * * \\ (0.0039) \end{gathered}$ | $\begin{gathered} 0.0909^{* * *} \\ (0.0040) \end{gathered}$ |  |
| C041nt | $\begin{gathered} 0.0151 * * * \\ (0.0014) \end{gathered}$ |  | $\begin{gathered} 0.0352 \text { *** } \\ (0.0015) \end{gathered}$ | $\begin{gathered} 0.0287 \text { *** } \\ (0.0030) \end{gathered}$ |  | $\begin{gathered} 0.0772 * * * \\ (0.0033) \end{gathered}$ |
| D026_03nt | $\begin{gathered} 0.0158 * * * \\ (0.0014) \end{gathered}$ |  | $\begin{gathered} 0.0377 \text { *** } \\ (0.0015) \end{gathered}$ | $\begin{gathered} 0.0345 \text { *** } \\ (0.0030) \end{gathered}$ |  | $\begin{gathered} 0.0879 * * * \\ (0.0032) \end{gathered}$ |
| D060nt | $\begin{gathered} 0.0144^{* * *} \\ (0.0019) \end{gathered}$ | $\begin{gathered} 0.0272 \text { *** } \\ (0.0019) \end{gathered}$ |  | $\begin{gathered} 0.0485 * * * \\ (0.0040) \end{gathered}$ | $\begin{gathered} 0.0800 \text { *** } \\ (0.0042) \end{gathered}$ |  |
| E069_11nt | $\begin{gathered} 0.0207 \text { *** } \\ (0.0015) \end{gathered}$ |  | $\begin{gathered} 0.0378 \text { *** } \\ (0.0017) \end{gathered}$ | $\begin{gathered} 0.0623^{* * *} \\ (0.0033) \end{gathered}$ |  | $\begin{gathered} 0.1049 \text { *** } \\ (0.0036) \end{gathered}$ |
| E262Bnt | $\begin{gathered} -0.0202 \text { *** } \\ (0.0009) \end{gathered}$ | $\begin{gathered} -0.02655^{* * *} \\ (0.0009) \end{gathered}$ |  | $\begin{gathered} -0.0414 * * * \\ (0.0018) \end{gathered}$ | $\begin{gathered} -0.0558^{* * *} \\ (0.0019) \end{gathered}$ |  |
| F121nt | $\begin{gathered} -0.0079 * * * \\ (0.0005) \end{gathered}$ |  | $\begin{gathered} -0.0161^{* * *} \\ (0.0005) \end{gathered}$ | $\begin{gathered} -0.0204^{* * *} \\ (0.0011) \end{gathered}$ |  | $\begin{gathered} -0.0398 * * * \\ (0.0012) \end{gathered}$ |
| H009nt | $\begin{aligned} & 0.1049 \text { *** } \\ & (0.0015) \end{aligned}$ |  | $\begin{gathered} 0.1743 \text { *** } \\ (0.0013) \end{gathered}$ | $\begin{aligned} & 0.2837 \text { *** } \\ & (0.0034) \end{aligned}$ |  | $\begin{gathered} 0.4557 * * * \\ (0.0031) \end{gathered}$ |
| H011nt | $\begin{gathered} 0.1782 * * * \\ (0.0017) \end{gathered}$ | $\begin{gathered} 0.2298 \text { *** } \\ (0.0014) \end{gathered}$ |  | $\begin{gathered} 0.4444^{* * *} \\ (0.0039) \end{gathered}$ | $\begin{gathered} 0.5826 * * * \\ (0.0034) \end{gathered}$ |  |
| _cons | $\begin{gathered} -0.0704 * * * \\ (0.0063) \end{gathered}$ | $\begin{gathered} 0.1050 \text { *** } \\ (0.0036) \end{gathered}$ | $\begin{gathered} -0.0924 \text { *** } \\ (0.0060) \end{gathered}$ | $\begin{gathered} 0.0223 \\ (0.0133) \end{gathered}$ | $\begin{gathered} 0.4659 * * * \\ (0.0080) \end{gathered}$ | $\begin{aligned} & -0.0083 \\ & (0.0133) \end{aligned}$ |
| N | 67,377 | 69,962 | 70,974 | 67,377 | 69,962 | 70,974 |
| p | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| R^2 | 0.3875 | 0.3297 | 0.2468 | 0.4967 | 0.4134 | 0.3235 |
| RMSE | 0.3755 | 0.3923 | 0.4162 | 0.7598 | 0.8204 | 0.8814 |
| AIC | 59,215.6944 | 67,616.1367 | 77,007.7923 | 15,4207.1372 | 17,0845.1385 | 183,498.0811 |
| BIC | 59,315.9930 | 67,671.0710 | 77,062.8127 | 15,4307.4358 | 17,0900.0727 | 183,553.1015 |
| maxAbsVPMCC | 0.4164 | 0.4083 | 0.4139 | 0.4164 | 0.4083 | 0.4139 |
| OLS max.Accept.VIF | 1.6325 | 1.4918 | 1.3276 | 1.9867 | 1.7047 | 1.4783 |
| OLS max.Comput.VIF | 1.4165 | 1.2547 | 1.3054 | 1.4165 | 1.2547 | 1.3054 |

[^0]Table A7. Controlling using the most relevant 10 remaining influences and most of the sociodemographic variables above, included one at a time using both the binary logit and ordered logit (ologit).

| Model | (1) | (2) | (3) | (4) | (5) | ${ }^{(6)}$ | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) | (19) | (20) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Input/Response | H010bin | H010bin | H010bin | H010bin | Ho10bin | H010bin | H010bin | H010bin | H010bin | H010bin | H010nt | H010nt | H010nt | H010nt | H010nt | H010nt | H010nt | H010nt | H010nt | H010nt |
| A106Cnt | ${ }^{0} .18999 * *$ | 0.1897 *** | ${ }^{0.1882}$ 2*** | ${ }^{0.1916}$ | 0.1911 *** | 0.1863 ******** | 0.1892 *** | 0.1934 *** | 0.1879 *** | 0.1793 *** | 0.1000 *** | 0.1004 *********) | ${ }^{0.0987 * * * *}$ | 0.1005 *** | ${ }^{0.1003 * * * *}$ | 0.1004 *** | $0^{0.1003 * * *}$ | 0.1031 *** | 0.0984 *** | ${ }^{0.0973 * * *}$ |
|  | ${ }^{(0.0193)}$ | ${ }^{(0.0193)}$ | ${ }^{(0.0193)}$ | ${ }^{(0.0193)}$ | ${ }^{(0.0193)}$ | ${ }^{(0.0194)}$ | ${ }^{(0.0194)}$ | ${ }^{(0.0194)}$ | ${ }^{(0.0194)}$ | ${ }^{(0.0197)}$ | ${ }^{(0.0151)}$ | ${ }^{(0.0151)}$ | ${ }^{(0.0151)}$ | ${ }^{(0.0151)}$ | ${ }^{(0.0151)}$ | ${ }^{(0.0152)}$ | ${ }^{(0.0152)}$ | ${ }^{(0.0152)}$ | ${ }^{(0.0152)}$ | ${ }^{(0.01533)}$ |
| cooint | $\begin{gathered} 0.1528 * * * \\ (0.0131) \end{gathered}$ | $0.1534^{* * *}$ (0.0131) | 0.1517 *** (0.0132) | $\begin{gathered} 0.1500^{* * * * *} \\ (0.0132) \end{gathered}$ | $0.1505^{* * *}$ (0.0132) | 0.1515 *** (0.0132) | 0.1441 ** (0.0132) | 0.1541 ** (0.0132) | $\begin{gathered} 0.1507 \\ (0.0132 \\ \hline 0.12 * \\ \hline \end{gathered}$ | 0.1441 ** (0.0134) | $\begin{aligned} & 0.1143 \text { 1***** } \\ & (0.0098) \end{aligned}$ | 0.1156 ** (0.0098) | 0.1142 ** (0.0098) | $0.1131^{\text {*** }}$ (0.0098) | $\begin{gathered} 0.1132 \\ (0.0098) \end{gathered}$ | 0.1147 ** (0.0098) | $\left.\begin{array}{r} 0.1097 \\ (0.0909 \\ (0.009 \end{array}\right)$ | 0.1146 ** <br> (0.0098) | $\begin{gathered} 0.11125 * * * * * * \\ (0.0099 \end{gathered}$ | $\begin{aligned} & 0.1135 \\ & (0.0100 \end{aligned}$ |
| C041nt | 0.1021 *** | 0.1023 *** | 0.1004 *** | 0.1018 *** | 0.1017 *** | 0.1021 *** | 0.0940 *** | 0.1031 *** | 0.1040 ** | 0.0967 *** | 0.0605 *** | 0.0613 *** | 0.0597 *** | 0.0601 *** | 0.0601 *** | $0.0614 * * *$ | $0.0559 * * *$ | 0.0623 *** | 0.0619 *** | 0.0572** |
|  |  |  | ${ }^{(0.01077}{ }^{(0,07 *}$ |  |  | (0.0108) |  | ${ }^{(0.0107)}$ |  |  |  |  |  | ${ }^{(0.00880)}$ |  |  |  | ${ }^{(0.0080}$ | ${ }^{(0.00880)}$ | ${ }^{(0.0081)}$ |
| D026_03nt | $\begin{aligned} & 0.1086 \times * * \\ & (0.0102) \end{aligned}$ | $\begin{gathered} 0.1091 \\ 0.0102 \\ (0.0102 \end{gathered}$ | 0.1076 *** (0.0102) | $\begin{aligned} & 0.102 \times * * * \\ & (0.0102) \end{aligned}$ | $\begin{aligned} & 0.10 .08^{* * *} \\ & (0.0102) \end{aligned}$ | 0.1080 *** (0.0103) | $0.1068^{* * *}$ (0.0102) | 0.1060 *** (0.0102) | $\begin{gathered} 0.1074 \times * * \\ (0.0102) \end{gathered}$ | $\begin{aligned} & 0.1048 * * * \\ & (0.0103) \\ & (01103 * \end{aligned}$ | 0.0888 ** (0.0077) | 0.0897 ** (0.0077) |  | 0.0887 ** (0.0077) | $\underset{(0.0077)}{0.088 * *}$ | $\begin{gathered} 0.0879 * * * * * \\ (0.0078) \end{gathered}$ | $\begin{gathered} 0.0883 \times x * \\ (0.0077) \end{gathered}$ | $\begin{gathered} 0.0878 \times * * * \\ (0.0078) \end{gathered}$ | $\begin{gathered} 0.0878 * * * \\ (0.0078) \\ \hline \end{gathered}$ | $\begin{aligned} & 0.0880 \times * \\ & (0.0078) \\ & (0.007 \end{aligned}$ |
| D060nt | $0.1077{ }^{* * *}$ | 0.1083 *** | ${ }^{0.1066 * * * *}$ | 0.1083 *** | 0.1082 2*** | 0.1073 *** | 0.1015 *** | 0.1065 *** | 0.1065 *** | 0.1114 *** | 0.1258 *** | 0.1277 *** | 0.1239 *** | 0.1258 *** | $0.1257 * * *$ | 0.1260 *** | 0.1214*** | 0.1244*** | 0.1255 ** | $0.1275 * * *$ |
|  | ${ }^{(0.0134)}$ | ${ }^{(0.0134)}$ |  |  |  |  |  | ${ }^{(0.0134)}$ |  |  |  |  | ${ }^{(0.0103)}$ | ${ }^{(0.0103)}$ |  | ${ }^{(0.0103)}$ | ${ }_{\text {a }}{ }^{(0.01023)}$ | ${ }^{(0.0103)}$ | ${ }^{(0.0103)}$ | ${ }^{(0.0104)}$ |
| E069_11nt | $0.1546^{\text {*** }}$ (0.0111) | $0.1546^{* * *}$ (0.0112) | (0.0112) | 0.1515 *** (0.0112) | 0.1520 *** (0.0112) | $0.1551^{\text {*** }}$ (0.0112) | $0.1524^{* * *}$ (0.0112) | $0.1536^{* * *}$ (0.0112) | $0.1542^{* * *}$ (0.0112) | $0.1523^{* * *}$ (0.0113) | 0.1639 *** (0.0084) | 0.1635 *** (0.0084) | $0.1645^{* * *}$ (0.0084) | $0.1616^{\text {*** }}$ (0.0084) | 0.1619 *** (0.0084) | 0.1640 *** (0.0085) | $0.1628^{\text {*** }}$ (0.0084) | $0.1625^{* * *}$ (0.0085) | $0.1626^{* * *}$ (0.0085) | $0.1616^{* * *}$ (0.0085) |
|  | -0.1319 | -0.1313 | -0.1390 | -0.1297 | -0.1305 | -0.1292 | -0.1140 | -0.1305 | -0.1320 | -0.1210 | -0.0944 | -0.0931 | -0.0992 | -0.0930 | -0.0935 | -0.0949 | -0.0836 | -0.0955 | -0.0963 | -0.0896 |
| E262Bnt | *** | ** | ** | ** | ** | ** | ** | ** | ** | *** | ** | ** | ** | ** | ** | *** | ** | *** | ** | ** |
|  | (0.0062) | (0.0062) | (0.0065) | (0.0062) | (0.0062) | (0.0064) | (0.0067) | (0.0063) | (0.0064) | (0.0064) | (0.0046) | (0.0046) | (0.0048) | (0.0046) | (0.0046) | (0.0048) | (0.0049) | (0.0047) | (0.0047) | (0.0048) |
| F121nt | $-0.0571$ | $-0.0572$ | $-0.0559$ | $-0.0567$ | $-0.0565$ | $-0.0570$ | $-0.0557$ | $-0.0571$ | $-0.0569$ | $-0.0549$ | $-0.0515$ | $-0.0515$ | $-0.0508$ | $-0.0512$ | -0.0511 | $-0.0515$ | $-0.0501$ | $-0.0518$ | $-0.0513$ | $-0.0501$ |
|  | (0.0038) | (0.0038) | (0.0038) | (0.0038) | (0.0038) | (0.0038) | (0.0038) | (0.0038) | (0.0038) | (0.0038) | (0.0028) | (0.0028) | (0.0028) | (0.0028) | (0.0028) | (0.0028) | (0.0028) | (0.0028) | (0.0028) | (0.0029) |
| H009nt | $\begin{aligned} & 0.8030 \text { ove } \\ & (0.0118) \end{aligned}$ | $\begin{gathered} 0.8029 \\ (0.0118) \\ (0,0) \end{gathered}$ | 0.8018 ** (0.0118) | $\underset{\substack{0.8026 * * * \\(0.0118)}}{1.024}$ |  | 0.8013 *** | 0.8030 *** $(0.0118)$ 1 | 0.8018 *** | $\begin{aligned} & 0.802101 \times x \\ & (0.0119) \end{aligned}$ | $\begin{aligned} & 0.7930 * * * \\ & .0 .0119) \end{aligned}$ |  | $\begin{gathered} 0.7880,0 \times 2 * \\ (0.009) \end{gathered}$ | $\begin{gathered} 0.7885 \\ (0.0095) \\ \hline \text { wo } \end{gathered}$ | 0.7876 *** |  |  | $\begin{gathered} 0.7888 * 8 * \\ (0.0095) \end{gathered}$ | $\begin{aligned} & 0.7873 * * * * \\ & (0.0096) \end{aligned}$ | $\begin{gathered} 0.789202 \times 6) \\ (0.009) \end{gathered}$ | $\begin{aligned} & 0.7881 * * * \\ & (0.0097) \\ & (0) \end{aligned}$ |
| H011nt | $\begin{gathered} 1.05050 \\ (0.0113) \end{gathered}$ | $\begin{gathered} 1.0247+2 \times x * \\ (0.0113) \end{gathered}$ | $\begin{gathered} 1.0234 * * * \\ \substack{0.0114)} \end{gathered}$ | $\begin{gathered} 1.0244+24 * \\ (0.0114) \end{gathered}$ |  | $\begin{gathered} 1.0204 * * * \\ (0.0114) \end{gathered}$ | $\begin{gathered} 1.02029 \\ (0.014) \\ (0.014) \end{gathered}$ | $\begin{gathered} 1.0234 \\ (0.0114) \\ \hline 10 \times 2 \end{gathered}$ | $\begin{gathered} 1.020 .026 \times 14) \\ (0.014) \end{gathered}$ | $\begin{gathered} 1.0147 * * * \\ (0.0115) \end{gathered}$ |  | $\begin{gathered} 1.1 .1637 \times 107 \\ (0.0120) \end{gathered}$ | $\begin{gathered} 1.1610 \\ (0.0120) \end{gathered}$ | $\begin{aligned} & 1.1 .644^{20 \times *} \\ & (0.012) \end{aligned}$ | $\begin{aligned} & 1.1623 \\ & (0.0120 \end{aligned}$ |  | $\begin{aligned} & 1.1622 * * * * \\ & (0.0120) \end{aligned}$ | $\begin{aligned} & 1.1622 * * * \\ & (0.0121) \\ & \hline \end{aligned}$ | $\begin{gathered} 1.1 .108) \\ (0.0121) \end{gathered}$ | $\underset{(0.140121)}{1.1020 \times 1)}$ |
| X001nt |  | $\begin{aligned} & 0.0225 \\ & (0.0211) \end{aligned}$ |  |  |  |  |  |  |  |  |  | 0.0488 ** (0.0153) |  |  |  |  |  |  |  |  |
| X003nt |  |  | $\begin{aligned} & -0.0022 \\ & (0.0007) \\ & (0.007 \end{aligned}$ |  |  |  |  |  |  |  |  |  | $\begin{gathered} -0.0018 \\ (0.0005) \\ (0.0005 \end{gathered}$ |  |  |  |  |  |  |  |
| x007nt |  |  |  | $0.0193^{* * *}$ (0.0050) |  |  |  |  |  |  |  |  |  | $\begin{gathered} 0.0115 * \\ (0.0036 \end{gathered}$ |  |  |  |  |  |  |
| x007bin |  |  |  |  | $\underset{(0.0223)}{0.0831 * *}$ |  |  |  |  |  |  |  |  |  | ${ }_{(0.0160)}^{0.0483^{* *}}$ |  |  |  |  |  |
| x011nt |  |  |  |  |  | $\begin{gathered} 0.0126 \\ (0.0075) \\ \hline(0) \end{gathered}$ |  |  |  |  |  |  |  |  |  | $\begin{aligned} & -0.0019 \\ & (0.0056) \\ & (0.0 \end{aligned}$ |  |  |  |  |
| X025A_01nt |  |  |  |  |  |  | $\begin{gathered} -0.0450 \\ (0.0059) \\ (0.0059 \end{gathered}$ |  |  |  |  |  |  |  |  |  | $\begin{gathered} -0.0276 \\ (0.0743) \\ (0.0043) \end{gathered}$ |  |  |  |
| X028nt |  |  |  |  |  |  |  | $\underset{(0.0052)}{-0.0074}$ |  |  |  |  |  |  |  |  |  | $\begin{aligned} & 0.00822^{0}(0.038) \\ & (0) \end{aligned}$ |  |  |
| X047nt |  |  |  |  |  |  |  |  | ${ }_{(0.0053)}^{-0.0063}$ |  |  |  |  |  |  |  |  |  | $\begin{aligned} & 0.0004 \\ & (0.0040) \end{aligned}$ |  |
| X049nt |  |  |  |  |  |  |  |  |  | $\begin{gathered} -0.0479 \\ (0.0045) \\ (0.0045 \end{gathered}$ |  |  |  |  |  |  |  |  |  | $\begin{gathered} -0.0204 \\ \substack{* * * * \\ (0.0033)} \end{gathered}$ |
| _cons | $\begin{gathered} -3.8106 \\ (0.0533) \\ (0.053) \end{gathered}$ | $\begin{gathered} -3.8479 \\ (0.0648) \\ (0.068) \end{gathered}$ | $\begin{aligned} & -3.6797 \\ & (0.0627) \\ & (0.06 \end{aligned}$ | $\begin{gathered} -3.8749 \\ (0.0561) \\ (0.051 \end{gathered}$ | $\begin{aligned} & -3.8628 \\ & (0.0553) \\ & (0.053) \end{aligned}$ | $\begin{gathered} -3.8262 \\ (0.0553) \\ (0.053) \end{gathered}$ | $\begin{aligned} & -3.6551 \\ & (0.0566) \\ & (0.056) \end{aligned}$ | $\begin{aligned} & -3.7709 \\ & (0.0581) \\ & (0.051 \end{aligned}$ | $\begin{gathered} -3.7733 \\ (0.0587) \\ (0.05 \end{gathered}$ | $\begin{gathered} -3.5200 \\ -3.0200 \\ (0.0591) \\ \hline 0.0 \end{gathered}$ |  |  |  |  |  |  |  |  |  |  |
| N | 67,377 | 67,346 | 67,111 | 67,166 | 67,166 | 66,717 | 66,941 | 66,735 | 66,374 | 64,646 | 67,377 | 67,346 | 67,111 | 67,166 | 67,166 | 66,717 | 66,941 | 66,735 | 66,374 | 64,646 |
| R22 | 0.3499 | 0.3499 | 0.3500 | 0.3502 | 0.3502 | 0.3492 | 0.3505 | 0.3495 | 0.3495 | 0.3516 | 0.2601 | 0.2602 | 0.2601 | 0.2600 | 0.2600 | 0.2600 | 0.2603 | 0.2598 | 0.2599 | 0.2603 |
| aic | 57,207.6288 | 57,186.9382 | 57,012.9242 | 57,005.7674 | 57,06.8554 | 56,694.9987 | 56,785.6819 | 56,673.5036 | 56,428.074 | 54,946.7610 | 132,72.0600 | 132,652.6488 | 132,238.9031 | 132,328.9613 | 132,330.2019 | 131,434.8931 | 131,825.2968 | 131,498.0829 | 130,856.8815 | 127,518.0001 |
| BIC ${ }^{5}$ | 57,307,9274 | 57,296.3493 | 57,122,2935 | 57,115.1464 | 57,116.2345 | 56,804.2972 | 56,895.0207 | 56,782.8054 | 56,577.3111 | 55,055.6811 | 132,844.5948 | 132,780.2951 | 132,366.5005 | 132,456.5702 | 132,457.8108 | 131,562.4081 | 131,952.8588 | 131,625.6017 | 130,984.3244 | 127,645.0736 |
| ${ }_{\substack{\text { maxAbsVPMCC } \\ \text { Pearson }}}^{\text {den }}$ | 0.4164 | ${ }^{0.4163}$ | ${ }^{0.4166}$ | ${ }^{0.4169}$ | ${ }^{0.4169}$ | 0.4178 | ${ }^{0.4189}$ | ${ }^{0.4163}$ | ${ }^{0.4159}$ | ${ }^{0.4186}$ | ${ }^{0.4164}$ | ${ }^{0.4163}$ | ${ }^{0.4166}$ | ${ }^{0.4169}$ | 0.4169 | 0.4178 | 0.4189 | ${ }^{0.4163}$ | 0.4159 | ${ }^{0.4186}$ |
| $\underset{\substack{\text { Pearson } \\ \text { Chir } \\ \text { GOF }}}{ }$ | 49,072.86 | 54,175.52 | 66,145.49 | 56,518.63 | 53,719.81 | 58,831.49 | 59,859.76 | 59,604.95 | 60,555.55 | 58,717.32 |  |  |  |  |  |  |  |  |  |  |
| pGOF | ${ }^{0.0000}$ | ${ }^{0.0000}$ | ${ }^{0.1113}$ | ${ }^{0.0000}$ | 0.0000 | ${ }^{0.0001}$ | ${ }^{0.0005}$ | ${ }^{0.0000}$ | ${ }^{0.0010}$ | ${ }^{0.0001}$ |  |  |  |  |  |  |  |  |  |  |
| aucroc | 0.8743 | 0.8743 | 0.8744 | 0.8745 | 0.8745 | 0.8741 | 0.8746 | 0.8742 | 0.8742 | 0.8750 |  |  |  |  |  |  |  |  |  |  |

Source: Own calculation in Stata 16MP 64-bit using WVS's data. Notes: Robust standard errors are between round parentheses. The raw coefficients above parentheses emphasized using *,*, and ${ }^{* *}$ are significant at $5 \%, 1 \%$, and $1 \%$, respectively. (The Stata script used for generating this table is available online at https://drive.google.com/u/0/uc?id= 1MRDLNkjymyOXXFiDmUhkNnWKzldmp6S1\&export=download, last accessed on 1 December 2021).

Table A8. Controlling using the most relevant five remaining predictors and most of the sociodemographic variables above, included one at a time using binary logit and also ologit.

| Model | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) | (19) | (20) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Input/Response | H010bin | H010bin | H010bin | H010bin | H010bin | H010bin | H010bin | H010bin | H010bin | Ho10bin | H010nt | H010nt | H010nt | H010nt | H010nt | H010nt | H010nt | H010nt | H010nt | H010nt |
| C041nt | 0.1925 *** | ${ }^{0.19198 * * *}$ | 0.1919 ** | ${ }^{0.1920 \% * *}$ | ${ }^{0.1921 * * *}$ | ${ }^{0.1868 * * *}$ | ${ }^{0.1655 ~ 5 * *}$ | 0.1917 *** | 0.1914 *** | $0^{0.17633^{* * *}}$ | 0.1569 *** | $0^{0.1567 * * *}$ | 0.1565 *** | $0.1564 * * *$ | 0.1566 *** | 0.1529 *** | 0.1365 *** | 0.1576 *** | 0.1580 ** | 0.1456 ** |
|  | (0.0090) |  |  |  |  |  |  |  |  | ${ }^{(0.0092)}$ |  | (0.0074) |  | ${ }^{(0.0074)}$ |  |  | ${ }^{(0.0075)}$ |  | ${ }^{(0.0075)}$ | ${ }^{(0.0076)}$ |
| D026_03nt | 0.2099 *** (0.0085) | (0.0085) | $0.2100^{* * *}$ (0.0085) | 0.2068 *** (0.0085) | $0.2073^{* * *}$ (0.0085) | (0.0086) | (0.0085) | (0.0085) | (0.0086) | (0.0087) | (0.0071) | (0.0071) | $0.1923 * * *$ (0.0071) | (0.0071) | 0.1905 *** (0.0071) | 0.1858 *** | 0.1814 ** | 0.1905 *** <br> (0.0072) | 0.1898 *** | $\underset{\substack{0.1877 * * * \\(0.0073)}}{\text { c, }}$ |
| E069_11nt | 0.2221 *** | 0.2227 *** | 0.2232 *** | 0.2165 *** | $0.2176{ }^{* *}$ | 0.2231 *** | 0.2144 *** | 0.2235 *** | 0.2212 *** | 0.2210 *** | 0.2328 *** | 0.2331 ** | ${ }_{0.2327 * * * * * * * *)}$ | $0.2286 * * *$ | 0.2293 *** | 0.2336 ** | $0.2277{ }^{* * *}$ | $0.2334 * * *$ | 0.2308 ** | ${ }_{0.2316{ }^{* * *}}$ |
|  | (0.0095) | (0.0095) | (0.0096) | (0.0096) | (0.0096) | (0.0096) | (0.0096) | (0.0096) | (0.0096) | (0.0998) | (0.0080) | (0.0080) | (0.0080) | (0.0081) | (0.0081) | (0.0081) | (0.0081) | (0.0081) | (0.0081) | (0.0082) |
| F121nt | -0.0907 | $-0.0909$ | -0.0905 | -0.0895 | $-0.0893$ | $-0.0877$ | -0.0835 | -0.0901 | -0.0875 | $-0.0846$ | -0.0882 | $-0.0883$ | -0.0880 | $-0.0871$ | -0.0870 | $-0.0858$ | $-0.0817$ | -0.0882 | -0.0854 | -0.0828 |
| F121nt |  | *** | ***********) | *** | *** | **** | *********) | **** | ***********) | *** | ***********) | **** | *** | **** | *** | *** | **********) | *** | *** | *** |
|  | ${ }^{(0.0032)}$ | ${ }^{(0.0032)}$ | ${ }^{(0.0032)}$ | ${ }^{(0.0032)}$ | ${ }^{(0.00322)}$ | (0.0032) | ${ }^{(0.0032)}$ | (0.0032) | (0.0032) | ${ }^{(0.0033)}$ | ${ }^{(0.0027)}$ | ${ }^{(0.0027)}$ |  | ${ }^{(0.0027)}$ | (0.0027) | (0.0027) | (0.0027) | (0.0027) | (0.0027) | (0.0028) |
| H009nt | $\begin{aligned} & 1.0048 * * * * * * \\ & (0.0098) \end{aligned}$ | $1.0048^{* * *}$ (0.0098) | $1.0034^{* *}$ (0.0098) | 1.0036 *** (0.0098) | 1.0038 *** <br> (0.0098) | $1.0010^{* * *}$ (0.0098) | 1.0038 *** (0.0098) | $1.0032 * *$ <br> (0.0098) | $\begin{aligned} & 1.0050 * * * \\ & (0.0099) \end{aligned}$ | $0.9967^{* * *}$ <br> (0.0100) | 1.0583 *** <br> (0.0087) | $1.0583 * *$ <br> (0.0087) | $\begin{aligned} & 1.0579 * * * \\ & (0.0088) \end{aligned}$ | $\begin{aligned} & 1.067 * * * * \\ & (0.0088) \end{aligned}$ | $\begin{gathered} 1.0569 * * * \\ 0.0088) \end{gathered}$ | $1.0573^{* * *}$ | $1.0592 * * *$ |  | $1.0645^{* * *}$ | 1.0612 *** |
| X001nt |  | (0.0098) <br> (0.0183) |  |  |  |  |  |  |  |  |  | (0.0087) <br> (0.0144) |  |  |  |  |  |  |  |  |
| x003nt |  |  | $\begin{aligned} & -0.0005 \\ & (0.0006) \end{aligned}$ |  |  |  |  |  |  |  |  |  | $\begin{gathered} -0.0007 \\ (0.0004) \end{gathered}$ |  |  |  |  |  |  |  |
| X007nt |  |  |  | 0.0349 *** (0.0043) |  |  |  |  |  |  |  |  |  | $\begin{gathered} 0.0247 * * \\ (0.0034) \end{gathered}$ |  |  |  |  |  |  |
| X007bin |  |  |  |  | 0.1448 *** (0.0194) |  |  |  |  |  |  |  |  |  | $\underset{(0.0153)}{0.1012^{* * *}}$ |  |  |  |  |  |
| X011nt |  |  |  |  |  | $0.0719^{* * *}$ (0.0062) |  |  |  |  |  |  |  |  |  | $\begin{aligned} & 0.0525 \times 5 \times 5 \\ & (0.0051) \end{aligned}$ |  |  |  |  |
| X025A_01nt |  |  |  |  |  |  | $\begin{aligned} & -0.0933 \\ & (0.0048) \\ & (0.0048 \end{aligned}$ |  |  |  |  |  |  |  |  |  | $\begin{gathered} -0.0709 \\ (0.0038) \\ (0.0038 \end{gathered}$ |  |  |  |
| X028nt |  |  |  |  |  |  |  | $\begin{gathered} -0.0209 \\ (0.0045) \\ (0.004) \end{gathered}$ |  |  |  |  |  |  |  |  |  | $\begin{gathered} -0.0039 \\ (0.0036) \end{gathered}$ |  |  |
| X047nt |  |  |  |  |  |  |  |  | $\begin{gathered} -0.0280 \\ (0.0046) \\ (0.0046 \end{gathered}$ |  |  |  |  |  |  |  |  |  | $\begin{aligned} & -0.0195 \\ & (0.0037) \\ & (0.0037) \end{aligned}$ |  |
| X049nt |  |  |  |  |  |  |  |  |  | $\begin{aligned} & -0.0649 \\ & (0.0439) \\ & (0.0039) \end{aligned}$ |  |  |  |  |  |  |  |  |  | $\begin{gathered} -0.0413 \\ (0.0432) \\ (0.0032) \end{gathered}$ |
| -cons | -3.3930 | -3.3457 |  | ${ }^{-3.4998}$ | ${ }^{-3.4795}$ | -3.4893 | -2.9883 | ${ }^{-3.2861}$ | ${ }^{-3.2555}$ | -2.9777 |  |  |  |  |  |  |  |  |  |  |
|  | (0.0416) | (0.0509) | (0.0476) | (0.0437) | (0.0432) | ${ }^{(0.0426)}$ | (0.0460) | (0.0470) | (0.0478) | (0.0480) |  |  |  |  |  |  |  |  |  |  |
| ${ }_{\text {R }} \mathrm{N}$ | ${ }^{70,974}$ | ${ }^{70,940} 0$ | 70,692 0,2160 | 70,742 0,2169 | 70,742 0,2168 | 70,277 0.2179 | 70,505 0.204 | 70,270 0.2160 | 68,850 0.2166 | 67,172 0,220 | ${ }^{70,974}$ | ${ }^{70,940}$ | ${ }^{70,692}$ | ${ }^{70,742}$ | ${ }^{70,742}$ | ${ }_{0}^{70,277}$ | ${ }^{70,505}$ | ${ }^{70,270}$ | ${ }_{0}^{68,850}$ | ${ }^{67,172}$ |
| ${ }_{\text {AIC }}$ | ${ }_{\text {72,631.1723 }}^{0}$ | ${ }_{\text {72,587.9587 }}^{0.2102}$ | ${ }^{72,391.7277}$ | ${ }^{72,325.7279}$ | ${ }^{72,3355.0446}$ | ${ }^{71,738.3853}$ | 71,755.0539 | ${ }^{\text {71, }, 881.25588}$ | ${ }^{70,6451.7933}$ | 68,640.2891 | ${ }_{160,060.0135}^{0.1525}$ | ${ }_{159,971.7406}$ | ${ }_{159,443.7541}^{0.15}$ | 159,498.0080 | ${ }_{159,506.9062}^{0.1526}$ | ${ }_{158,290.3255}^{0.2535}$ | ${ }_{\text {158, }}^{\text {153030.8924 }}$ | ${ }_{\text {158,466.4417 }}^{0.1524}$ | ${ }_{155,509.3879}^{0.153}$ | 151,404,6398 |
| BIC | 72,686.1927 | 72,652.1458 | 72,455.8903 | 72,389.8954 | 72,399.2122 | 71,802.5067 | 71,819.1979 | 71,945.3765 | 70,709.7711 | 68,704.0942 | 160,133.3741 | 160,054.2670 | 159,526.2489 | 159,580.5092 | 159,589.4073 | 158,372.7673 | 158,713.3633 | 158,548.8826 | 155,591.6451 | 151,486.6749 |
| maxAbsVPMCC | 0.4139 | 0.4138 | 0.4142 | 0.4144 | 0.4144 | ${ }^{0.4153}$ | ${ }^{0.4141}$ | ${ }^{0.4140}$ | ${ }^{0.4158}$ | ${ }^{0.4182}$ | 0.4139 | 0.4138 | 0.4142 | 0.4144 | 0.4144 | 0.4153 | ${ }^{0.4141}$ | ${ }^{0.4140}$ | ${ }^{0.4158}$ | ${ }^{0.4182}$ |
| ${ }_{\text {Pearson }}^{\text {chi'2 GOF }}$ | 4834.96 | 8010.25 | 47,228.82 | 13,499.05 | 8007.53 | 15,896.96 | 19,233.09 | 17,955.00 | 20,540.01 | 18,830.05 |  |  |  |  |  |  |  |  |  |  |
| p GGF | ${ }^{0.0000}$ | ${ }^{0.0000}$ | ${ }^{0.1302}$ | ${ }^{0.0000}$ | ${ }^{0.0000}$ | ${ }^{0.0000}$ | ${ }^{0.0000}$ | ${ }^{0.0000}$ | ${ }^{0.0000}$ | ${ }^{0.0000}$ |  |  |  |  |  |  |  |  |  |  |
| Aucroc | 0.8032 | 0.8032 | 0.8031 | 0.8036 | 0.8036 | 0.8042 | 0.8057 | 0.8032 | 0.8034 | 0.8067 |  |  |  |  |  |  |  |  |  |  |

Source: Own calculation in Stata 16MP 64-bit using WVS's data. Notes: Robust standard errors are between round parentheses. The raw coefficients above parentheses emphasized using *** are significant at $1 \%$. (The Stata script used for generating this table is available online at https:/ / drive.google.com/u/0/uc?id=1uMuu8AqDnUNZ9IaOIW7e0yNCQPu3 dLue\&export=download, last accessed on 1 December 2021).


Figure A1. Schematic representation of the techniques used in this study. Source: Author's projection.

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[^0]:    Source: Own calculation in Stata 16MP 64-bit using WVS's data. Notes: Robust standard errors are between round parentheses. The raw coefficients above parentheses emphasized using ${ }^{* * *}$ are significant at $1 \%$. (The Stata script used for generating this table is available online at https://drive.google.com/u/0/uc?id=1U8Din9BouYgJybXUAwy-6-RUN2aPKBzZ\&export=download, last accessed on 1 December 2021).

