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Author(s)	Tsuji, Daisuke
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DOES USE OF THE INTERNET MAKE PEOPLE MORE RACIST?: A CAUSAL ANALYSIS BASED ON A SYNCHRONOUS EFFECTS MODEL USING THE INSTRUMENTAL VARIABLE METHOD

Daisuke Tsuji*

Abstract

In Japan, the rapid and widespread dissemination of online xenophobic discourse has been increasingly apparent since around 2000; among the serious resulting problems are the activities of organized hate groups that have emerged out of the online right such as *Zaitokukai*. Previous studies have confirmed the Internet's role as a catalyst that connects racists to one another and promotes their activities. However, it remains an open question whether Internet use exacerbates racist attitudes not only among such activist groups but also among the general populace. In addition to the near absence of studies analyzing this question based on social survey data, those that exist merely establish a positive correlation between Internet use and racist attitudes, leaving the direction of causality unclear.

Therefore, by means of a synchronous effects model using an instrumental variable method based on data from a web-based questionnaire survey conducted in November 2017, I analyzed the direction of causality regarding (i) whether Internet use exacerbated racist attitudes and (ii) whether Internet use was more prevalent among those exhibiting stronger racist attitudes. As a result, the directional path for (i) showed significant coefficient values, confirming a positive causal effect; meanwhile, the directional path for (ii) was not significant, meaning that causal effects were not supported.

Interestingly, it was also found that Internet use simultaneously had the causal effect of heightening anti-racist attitudes. From the results of additional analyses, I suggest that this simultaneous and reciprocal bi-directional effect may be engendered by selective exposure to information and peers—in other words, those who are predisposed to racist attitudes will be more strongly influenced by more frequent contact with racist information and peers, while the opposite will be true in the case of those with anti-racist views.

Key words: cyber racism, selective exposure to information, statistical causal inference

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* Graduate School of Human Sciences, Osaka University, 1-2, Yamadaoka, Suita, Osaka, 565-0871, Japan.

1. The Problem and its Background

The first use in a national newspaper of Japanese term "*Netto uyoku*," meaning "online right," occurred in the morning edition of the *Asahi Shinbun* newspaper on May 5, 2006. The article in question, while discussing an incident in which a certain blog had been swarmed with critical comments and forced to shut down, provided the additional explanation that the term "is a word that has been used on the Internet for several years to refer to a group of users who repeatedly make posts and comments regarding ideas they find incompatible with their own. The term [online right] derives from the fact that most of the views expressed are based on right-wing ideas."

A decade later, on May 24, 2016, the General Committee of Japan's House of Representatives unanimously passed "the Act on the Promotion of Efforts to Eliminate Unfair Discriminatory Speech and Behavior against Persons Originating from Outside Japan," popularly known as the Hate Speech Elimination Act. During this time, anti-foreigner movements typified by *Zaitokukai* (the so-called "*Zainichi Tokken wo Yurusanai Shimin no Kai* [Association of Citizens Against Special Privileges for Zainichi Koreans]"), no longer content to agitate online, had started staging repeated hate demonstrations in cities across Japan, leading to the spread of serious damages done to ethnic minorities in Japan, especially Zainichi Koreans. This situation eventually reached the point where Japan's government and the Diet, which had been slow to respond to repeated recommendations from the United Nations Committee on the Elimination of Racial Discrimination, finally had no choice but to take legal action.

Although hate demonstrations showed signs of decline after the enforcement of the Hate Speech Elimination Act, calls for stronger regulations noting "the rampant state of online incitement to discrimination" have remained persistent (*Mainichi Shinbun*, morning edition for May 25, 2017). This is because the current law is merely a law in principle that is not accompanied by any penalty provisions, as such punishments would threaten freedom of expression as guaranteed by the Constitution. Even among constitutional scholars, the majority favor the passive theory with regard to the legal regulation of hate speech (Nasu 2016).

The passive theory argues that regulations should only limit speech in the case of a "clear and present danger," so to speak, wherein an imminent risk of harm is obvious. Otherwise, even in the case of speech or expressions of ideas that could conceivably cause harm in social terms—setting aside for now the question of whether hate speech corresponds to "speech" or "expressions of ideas"—proponents of this theory take the position that such issues should be fought over in free debate and left to a process whereby inferior ideas are weeded out on the basis of a kind of market competition principle. While the details of this legal debate are beyond the scope of this study, it is worth noting the following criticism against that position:

> Furthermore, given the numerous examples throughout human history in which hate speech has swept through society within a very short period of time, engendering egregious violations

> of human rights and massacres of targeted groups, as notably in the case of the Jewish Holocaust under the Nazi regime, given a long-term perspective ... any reliance on "the free market of ideas" will also be fraught with serious dangers (Kotani 2014: 86).

Given that racist movements have "swept through society within a very short period of time" over the last decade, particularly via the Internet, these dangers are likely to have taken on a tangible reality. Naoto Higuchi, who conducted an interview survey with more than thirty racist activists, mostly members of *Zaitokukai*, has concluded that "it is no exaggeration to say that Japan's racist movements were made possible by the force of the Internet" (2014: 118). In addition, rather than limiting his study to "those who were originally activists," he reveals the existence of a certain number of groups who have "discovered and been incited to become involved in 'issues' that would have been overlooked without the Internet" (Higuchi 2014: 125).

Does this finding suggest that use of the Internet has the effect of fueling racist attitudes not only among activist groups, but also at a more general level? By this logic, we might also find the opposite effect—namely, encouragement to anti-racist attitudes as a result of learning of the seriousness of hate and of counter-activist arguments "that would have been overlooked without the Internet." The question of which direction the effect will be more likely requires examination using even larger-scale survey data that includes the general populace.

2. Racism and the Internet: Literature Review

Previous studies that have statistically analyzed the effect of Internet use on racist attitudes using social survey data are extremely rare, both in Japan and overseas. Studies of racist nationalism appearing online, also known as "cyber nationalism" or "cyber racism," have been conducted internationally since the early days of the Internet (e.g., Back et al. 1998; Burris et al. 2000; Back 2002; Liu 2006; Eriksen 2007; Daniels 2013). And while studies have quickly been pursued relating to the "alt-right," in effect an American version of the online right which emerged as an issue during the 2016 U.S. presidential election—these consist exclusively of discussions informed by theoretical perspectives, case studies focused on particular activist groups, or analyses of online discourse (e.g., Hawley 2017).

Originally, within the study of nationalism, "traditionally, historical or ethical approaches were in the mainstream, while studies that used quantitative methods remained rare worldwide until the 2000s" (Kim 2017: 77). And while quantitative studies, notably the National Identity surveys by the International Social Survey Programme (ISSP), have been gaining popularity in recent years, they have largely remained silent on the potential impact of Internet use on racist attitudes (which is perhaps understandable given the mainstream interests of nationalism research). The aforementioned ISSP survey did not even include a question about Internet use

on its most recent questionnaire in 2013.[1)] Even the 2014 European Social Survey (ESS), which included items about racist attitudes toward immigrants and refugees, did not pose any questions about the state of Internet use (and while an item concerning Internet use was included in the 2016 survey, it also dropped the question about racist attitudes).[2)] The situation with respect to quantitative studies of nationalism in Japan is similar, and even in surveys by Shunsuke Tanabe and his colleagues (Tanabe 2011, 2016) and Myungsoo Kim (2015), we find no trace of questions being asked about Internet use—at least, no results have been reported regarding any analysis associated with racist attitudes.

In fact, it appears that only a single quantitative study analyzing the association between Internet use and racist attitudes exists in the overseas literature. Based on an online survey in China, Hyun et al. (2014) reveal that online searches for information for topics such as Japan-China relations are positively correlated with nationalistic attitudes, and by extension are more likely to lead to anti-Japanese behavior. Few studies exist within Japan, as well. Aside from analyses of online surveys I myself carried out in 2008 and 2014 (Tsuji and Fujita 2010; Tsuji 2017), which showed that time spent using the Internet and the usage frequency of sites such as blogs and bulletin boards have a positive correlation with racist attitudes, there is only a study by Fumiaki Taka (2015), which also demonstrated that time spent using the Internet has a positive correlation with racism toward Zainichi Koreans.

In addition, these few extant studies essentially only establish a *correlation* between Internet use and racist attitudes, such that the direction of *causality* remains unclear. Discourses prominently characterized by anti-Korean and anti-Chinese feelings are in heavy circulation online.[3)] Therefore, it stands to reason that the more someone uses the Internet, the more opportunities they will have to encounter such discourses; this, in turn, could conceivably exacerbate racist attitudes. On the other hand, an inverse causal relation might also be posited whereby people who have strong racist attitudes in the first place may use the Internet more because it enables them to more easily come into contact with racist discourses that accord with their own preferences, or else to more easily promulgate racist attacks and sentiments, protected by a cloak of anonymity and invisibility. Yet neither of these common-sense assumptions has been empirically tested.

Does use of the Internet strengthen racist attitudes, or does racist attitudes encourage use of the Internet? Alternatively, do both of these scenarios exist in a relationship whereby they

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1) For the survey questionnaires for each year, see the ISSP website: http://www.issp.org/data-download/by-year/ (Accessed January 25, 2018).

2) For the survey questionnaires for each year, see the ESS website: http://www.europeansocialsurvey.org/data/ (Accessed January 25, 2018).

3) According to Tadamasa Kimura (2017: 134), who conducted an "analysis of comments on political and social news sites" online, anti-Korean and anti-Chinese sentiments appear as themes "not only within the radical subset of online discourse, but also in very general posts." Moreover, a content analysis of tweets relating to Koreans on the Twitter microblogging service (Taka 2015: 45–46) found that more than 70% expressed negative attitudes.

mutually reinforce each other (two-way causality)? The purpose of this paper is to verify this set of hypotheses based on data from a new original survey. In addition, I propose to carry out the same verification as to whether use of the Internet strengthens anti-racist attitudes. At a glance, it seems strange that according to a prevailing view within current Internet research, use of the Internet—at least at the aggregate level—has the effect of simultaneously strengthening both racist and anti-racist attitudes.

In media effects studies, it is well known that supporters of the U.S. Republican Party prefer to engage with news that favors the Republican Party, and that Democrats prefer to engage with news that favors the Democratic Party (Lazarsfeld et al. 1948). This is known as "selective exposure" to information by a pre-existing view. Accessing information via the Internet based on one's own preferences is far easier than via mass media, and advances in information-filtering technology have increased the likelihood that users will automatically be presented with information tailored to their own preferences (Paliser 2011). In such a digital environment, individuals can also establish more links among users who share each other's preferences. In this way, it becomes easier to engage with news and opinions as well as with other users whose views are suited to users' individual preferences and more difficult to encounter those that are dissimilar, leading to the formation of interpersonal networks and information environments characterized by homogeneity (Del Vicario et al. 2016; Sunstein 2017).

In other words, the more that users with predispositions toward racism use the Internet, the more they will engage with discourses and other users that further strengthen their own racist attitudes. Meanwhile, it is also conceivable that anti-racist users will have their own predispositions reinforced in the same way—the Internet operates not in a *uni-directional* manner, but in a *bi-directional* manner in accordance with pre-existing tendencies.

In my own analysis mentioned above (Tsuji 2017), the fact that I adopted a scale configuration that positioned racist attitudes and anti-racist attitudes at either pole of a unified axis meant that I was not able to investigate the possibility of such a bi-directional effect. To address that limitation, in this study, I attempt a scale configuration that will be able to separate racist attitudes and anti-racist attitudes into their own independent axes. If a causal effect can be recognized whereby use of the Internet exacerbates racist attitudes at the same time as it heightens anti-racist attitudes, this could be regarded as a result suggesting a *bi-directional* effect. Conversely, if the former is exacerbated while the latter is dampened, then Internet use may be thought to encourage *uni-directional* attitudinal change toward support for racism, regardless of a user's predispositions. In the next section, as well as presenting an outline of the survey I recently conducted, I also offer a description of the scale configuration employed therein.

3. Survey Outline and Measures of Racist/Anti-Racist Attitudes

An independent research firm, NTTCom Online Marketing Solutions, was commissioned for the survey, which was carried out by means of a web-based questionnaire survey system between November 15 and 18, 2017, with the participation of monitors between the ages of 16 and 64 years registered with this firm or one of its affiliates. The planned sample number was a total of 4,000 cases made up of a total of 20 cells of men and women in five-year age segments, respectively allocated with 200 cases each. After expurgating responses deemed to be of low reliability, 4,007 valid responses were ultimately obtained.

On this survey form, I adopted eight items as questions measuring racist and anti-racist attitudes, making reference to the ISSP's 2013 National Identity Survey. Table 1 summarizes descriptive statistics for these questions and their responses (scored on a 5-point Likert scale from "Agree" [5 points] to "Disagree" [1 point]), as well as the results of exploratory factor analysis (maximum likelihood method, after promax oblique rotation).[4] In determining the number of factors, I adopted a two-factor structure satisfying both the Kaiser-Guttman and scree-plot criteria.[5]

Table 1. Descriptive statistics of attitudes toward foreigners and the results of factor analysis (maximum likelihood method, after promax oblique rotation)

(n = 4,007)	*Mean*	*S.D.*	Factor I	Factor II
These kinds of foreigners are generally good for Japan's economy.	3.38	0.85	.63	−.01
These kinds of foreigners improve Japanese society by bringing new ideas and cultures.	3.10	0.84	.64	−.08
These kinds of foreigners, if they have immigrated to Japan legally, should have the same rights as Japanese citizens.	3.28	0.97	.74	−.07
These kinds of foreigners, if they have immigrated to Japan legally, should have equal access to public education as Japanese citizens.	3.66	0.92	.69	.08
If the number of these kinds of foreigners increases, the crime rate will also increase.	3.47	0.97	−.03	.71
These kinds of foreigners take jobs away from the Japanese.	2.96	0.92	−.04	.64
Japan's culture is gradually undermined by these kinds of foreigners.	3.00	0.94	−.09	.70
If these kinds of foreigners are illegally overstaying their visas, the Japanese government should take stronger measures to expel them from the country.	3.83	0.95	.20	.52
			Inter-factor correlation	−.16

Notes: The phrase "these kinds of foreigners" refers to "foreigners who come to settle in Japan."

[4] This and all subsequent analyses were performed using Stata 15.1.

[5] Since results obtained were largely similar to the Japan data from the ISSP survey, this seems to be a relatively stable factor structure.

Factor I could be called the "positive evaluation of foreigners" factor, given the high factor load assigned to the four items in the upper half, which express positive attitudes toward foreigners. Conversely, Factor II can be interpreted as the "xenophobic feelings toward foreigners" factor, given the high factor load assigned to the four items in the lower half, which express negative attitudes. In the following, these factor scores will be treated as two independent scale variables serving as indicators of anti-racist and racist attitudes, respectively.

It might seem surprising that these eight items, relating to positive and negative attitudes, do not constitute a single factor, but can rather be divided for the time being into two separate factors that show a weakly negative inter-factor correlation. However, an ambivalence whereby the same individual can positively evaluate a given subject while harboring negative feelings is hardly unusual, even in terms of general views.

More important is the fact that answers to the positive attitudes questions and the negative attitudes questions are seemingly distinct from each other when considering different groups of foreigners. Table 2 shows a positive correlation for all countries for the positive evaluation factor, which shows the correlation coefficient between the scores of these two factors and feelings of affinity for five separate countries (scored on a 5-point Likert scale from "feel strongly" to "do not feel at all"), and accordingly what is assumed in the case of positive evaluation can be regarded for the present as referring to foreigners in general. With regard to the xenophobic feelings factor, however, a particularly high negative correlation value can be observed relative to China and South Korea. This suggests that xenophobic feelings are targeted exclusively toward these two countries. What is also interesting is that a positive correlation can be seen in relation to the USA and Taiwan, whereby stronger xenophobic feelings are associated with stronger feelings of affinity.

The difference in these correlations likely speaks to the specificity and complexity of ethnic in-group and out-group boundaries among the Japanese. However, this point is beyond the scope of this paper, though it would provide the grounds for interesting future research. To return to the aim of this paper, I next explain my method of analyzing the causal relations between Internet use and positive evaluation of foreigners or xenophobic feelings toward foreigners.

Table 2. Correlation between Positive Evaluation of Foreigners/Xenophobic Feelings toward Foreigners and Affinity toward Each Country

(n = 4,007)	USA	Russia	Taiwan	China	South Korea
positive evaluation of foreigners	.18***	.14***	.16***	.23***	.24***
xenophobic feelings toward foreigners	.07***	−.03*	.04*	−.18***	−.21***

Notes: *** $p < .001$, * $p < .05$.

4. Method of Analysis: Synchronous Effects Model

The analytical framework used here is a synchronous effects model employing instrumental variables. While the constraints of this article significantly curtail any statistical mathematical argumentation, on the basis of Figure 1, I wish to explain the necessary minimum points in a way that appeals to intuitive understanding.

I posit that variable Y_a may exert a causal effect on variable Y_b, while simultaneously positing that Y_b, may exert a causal effect on Y_a. These variables, Y_a and Y_b, correspond to the target variables in the diagram. Here, I regard Y_a as the strength of a racist attitude and Y_b as the frequency of Internet use. The directional arrow [i] expresses the causal relation whereby a racist attitude is strengthened by higher frequencies of Internet use, while [ii] expresses the causal relation whereby frequency of Internet use increases with a stronger initial racist attitude. Estimating the direction of causality requires an instrumental variable.

The instrumental variable must causally affect (or else logically predict) one of the target variables, but not the other. For example, in this case, as an instrumental variable X_a corresponding to a racist attitude Y_a, I use the "negative experience of contact with foreigners" scale described below. While it is perhaps natural to assume that a racist attitude Y_a will grow stronger as the result of experiencing an unpleasant interaction with foreigners, it seems less likely that an increase in the frequency of Internet use, Y_b, will be occasioned by the experience of an unpleasant interaction with foreigners. It is perhaps remotely possible such an experience will spur negative interest in foreign countries (or foreign people), leading to an increase in online searches for information relating to foreign countries. Regarding such a causality path, we should introduce variables that would conceivably mediate X_a (experience of interactions with foreigners) and Y_b (Internet use), such as frequency of online searches for information relating to foreign countries and overseas topics, as control variables. What is important here is that we should not be able to think of a *direct* path whereby X_a exerts a causal impact on Y_b.

Now, if we posit that Y_a exerts a causal effect on Y_b as in direction [ii] in Figure 1, then following the causal chain $X_a \rightarrow Y_a \rightarrow Y_b$, an apparent correlation will emerge between X_a and Y_b. In contrast, if Y_b exerts a causal effect on Y_a as in direction [i], this results in $X_a \rightarrow Y_a \leftarrow Y_b$, and the flow

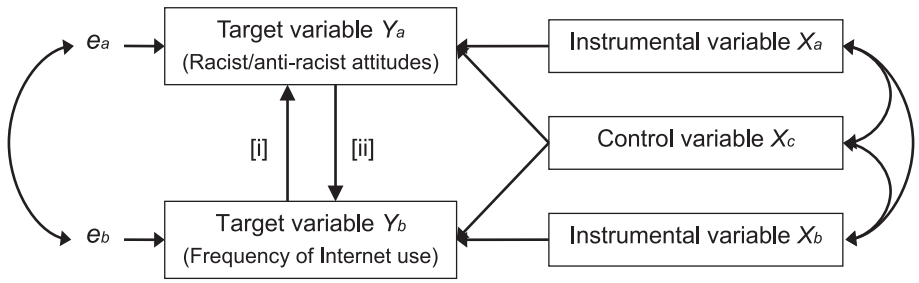

FIGURE 1. Conceptual diagram of the synchronous effects model used in analysis.

of causality is merely toward Y_a; the apparent correlation between X_a and Y_b does not occur. Thus, using an instrumental variable, the predicted correlation (covariance) matrix will differ according to which of the directions of causality exists. Thus, we can identify the direction of causality.

Methods used in parameter estimation can broadly be divided into those making use of full information and those making use of limited information (Paxton et al. 2011: 56–58). While the former produce more efficient parameter estimates, they are also known to be more vulnerable to bias stemming from model specification error. On the other hand, because the latter, typified by the Two-Stage Least Squares (2SLS) method, is not included in the calculation without assuming a correlation between the error term e_a in the regression formula [i], which predicts Y_a, and the error term e_b in the regression formula [ii], which predicts Y_b, its efficiency in terms of parameter estimation will be inferior.

[i] $Y_a = \alpha_i Y_b + \beta_i X_a + \gamma_i X_c + Z_a + e_a$

[ii] $Y_b = \alpha_{ii} Y_a + \beta_{ii} X_b + \gamma_{ii} X_c + Z_b + e_b$

(X_c is a control variable, Z_a and Z_b are intercepts)

However, since the parameter estimations for [i] and [ii] are carried out independently,[6] the effect of bias is kept within each equation, indicating a higher level of robustness. Moreover, the use of 2SLS has the considerable advantage that several methods exist for evaluating whether the instrumental variable satisfies the required conditions based on the observation data.

Therefore, in Section 6, I first confirm the validity of the instrumental variables (specifying the model) using 2SLS, then carry out an estimation using the full information maximum likelihood (FIML) method to verify the causal effects together with the results of estimation with 2SLS.

5. Variables Used in the Analysis

For target variable (dependent variable) Y_a, I use the positive evaluation of foreigners factor and xenophobic feelings toward foreigners factor discussed in Section 3. The other target variable, Y_b, is the "amount of Internet use," which equals the logarithm of the sum of the amount of time per day spent using the Internet on personal computers and on smartphones or mobile phones.[7] While using the aggregate total of the various forms of Internet use tends to result in a

[6] Even so, in its current form, this formula cannot be subjected to OLS (or equivalent) regression analysis. The error term e_a that appears on the right side of Formula [i] naturally correlates with Y_a on the left side, as well as with Y_b, via Y_a which appears on the right side of Formula [ii]. In other words, because the error term e_a correlates with the independent variable Y_b on the right side of Formula [i], the assumption of independence (non-correlation) between the independent variable and the error term is violated. Therefore, in practice, each formula is estimated by transforming it into a "reduced form" equation for which independence can be assumed between independent variable and error term (Paxton et al. 2011: 15–17).

[7] In both cases, respondents were asked to indicate "the amount of time spent using the Internet in private or as leisure, excepting use for work or study."

relatively coarse analysis, because these various forms of Internet use (such as information exposure and interpersonal exchanges on news sites, social media, and bulletin boards) can all affect racist attitudes, even if they have a weak effect individually, it is easy to imagine that they may cumulatively or synergistically have a major effect. Therefore, it is first necessary to examine whether the sum total of their use has any causal effect.

Two items were set for the instrumental variables for "positive evaluation" and "xenophobic feelings". One was the "negative experience of contact with foreigners" scale, constructed by the simple addition of responses to the question of whether the respondent had personally "experienced unpleasant thoughts or difficulties when interacting with foreigners or traveling overseas" or heard stories of similar experiences from family members or close friends (scored on a 4-point Likert scale from "often" to "never"). Another was the "positive experience of contact with foreigners" scale, which asked a similar question about having "experienced kind treatment or pleasant feelings." As noted in the previous section, a causal relation whereby interest in foreign countries (and people) stimulated by such experiences might spur an increase in use of the Internet in pursuit of related information is also possible. This was dealt with by adding "degree of Internet use to access abroad" as a control variable.[8)]

In terms of instrumental variables for "amount of Internet use," I used the following three items. The first was "amount of free time available" in a day. While time spent using the Internet will also increase with greater amounts of freely available disposable time, a direct causal effect whereby (anti-)racist attitudes will become stronger as leisure time increases in hardly seems plausible. However, since an indirect effect is conceivable, via an increased amount of time spent exposed to mass media, I added "amount of TV watched" and "amount of newspapers read" as control variables.[9)] Next was "degree of shopping-related Internet use," which simply added the frequency of use (on a 3-point scale from "often" to "never") involving "online shopping," "ticket reservations," "restaurant reservations," and "Internet banking." While time spent shopping online will naturally lead to a proportional increase in time spent using the Internet, it is not plausible that online shopping would strengthen (anti-)racist attitudes. And since we can also think of "playing online games and social media games" (reported on a 5-point scale from "almost every day" to "never") in the same way, "degree of gaming-related Internet use" was also added as an instrumental variable.

As control variables, in addition to the aforementioned "degree of Internet use to access abroad," "amount of TV watched," and "amount of newspapers read," I also used the following

8) This was measured by simply adding the scores (on a 4-point scale from "Often" to "Almost never") for the following three items: "searching the Internet for information about overseas travel or studying abroad," "searching the Internet for information about foreign countries or cultures of interest," and "communicating with foreigners or people living overseas via social media or e-mail." The Cronbach's alpha was .80.

9) I use response values for time spent watching television per day (on an 8-point scale from "5 hours or more" to "Never") and usual frequency of reading newspapers (on an 8-point scale from "Almost daily (and 20 minutes or more a day on average)" to "Never"). In addition, with regard to newspapers, the survey asked respondents to exclude "online newspaper company sites and news sites that can be read without a subscription."

variables. As demographic variables, I inserted sex (male dummy), age, number of years of education, subjective economic situation (on a 5-point scale from "being comfortable" to "struggling" in daily life), student dummy, full-time house-wife/husband dummy, and unemployed dummy (with employed people as a reference category). For psychological variables, I included general trust, which was recognized as associated with racist attitudes in Kim (2015); and loneliness, which was recognized as relevant in Tsuji (2017).[10] Moreover, with reference to previous studies such as Nagayoshi (2011) and Hamada (2016), I also added

Table 3. Descriptive Statistics of Variables Used in the Analysis

(n = 4,007)	*Mean*	*S.D.*	*Range*
Positive evaluation of foreigners	0.00	0.89	−3.07–2.23
Xenophobic feelings toward foreigners	0.00	0.87	−2.78–2.30
Amount of Internet use (log)	3.03	0.75	0–4.95
Amount of TV watched	4.78	1.99	1–8
Amount of newspapers read	3.89	2.80	1–8
Degree of Internet use to access abroad	5.14	2.40	3–12
Sex (male dummy)	0.49	0.50	0–1
Age	40.53	14.08	16–64
Years of education	14.70	1.89	9–18
Subjective economic situation	2.83	1.07	1–5
Student dummy	0.13	0.33	0–1
Full-time house-wife/husband dummy	0.16	0.37	0–1
Unemployed dummy	0.09	0.29	0–1
General trust	8.70	2.51	3–15
Loneliness	7.73	2.64	3–15
Political distrust	5.84	1.92	2–10
Political interest	3.20	1.07	1–5
Political authoritarianism	2.58	1.02	1–5
LDP support	0.25	0.43	0–1
Kōmeitō support	0.03	0.17	0–1
Negative experience of contact with foreigners	3.39	1.62	2–8
Positive experience of contact with foreigners	4.23	1.92	2–8
Disposable time (log)	3.18	0.77	1.25–4.58
Degree of shopping-related Internet use	8.21	2.08	5–15
Degree of gaming-related Internet use	1.90	1.48	1–5

[10] For general trust, with reference to Yamagishi (1998), measurement was taken by simply adding the scores (on a 5-point scale from "Agree" to "Disagree") for answers to the following statements: "most people in the world are basically honest," "most people in the world are trustworthy," and "most people in the world are trusting of others." For loneliness, with reference to Moroi (1991), measurement was taken by simply adding the scores (on a 5-point scale from "True" to "Not true") to the following statements: "I am not lonely" (inversely scored item), "There is no one I can turn to," and "I am in tune with the people around me" (inversely scored item). The Cronbach's alpha values were .84 and .69, respectively.

political distrust, political interest, political authoritarianism, and support for the LDP and Kōmeitō political parties.[11] For the analysis, I used the above 25 variables. Descriptive statistics for each variable are shown in Table 3.

6. Results

First of all, we must confirm the validity of the five instrumental variables set in the previous section. One of the most important conditions required by the instrumental variable X_a, as mentioned in Section 4, was that it should on the one hand be correlated with the target variable Y_a, but on the other hand *not* be correlated with Y_b. In other words, X_a must be uncorrelated with the error term e_b. A method to test this correlation has been developed in analysis by 2SLS. Here, in order to carry out 2SLS using a robust standard error in view of the possibility of heteroscedasticity, I assess the significance level of the correlation using the robust score test from Wooldridge (1995). If the result of this test is not significant, a correlation cannot be said to exist, and it may be considered for the time being to be valid as an instrumental variable.

[A] In an analysis model using the "positive evaluation of foreigners" factor and "amount of Internet use" as target variables, two instrumental variables for the positive evaluation factor were confirmed to pass this test ($\chi^2 = 6.68$, $p = .04$). However, test results for three instrumental variables were found to be significant for "amount of Internet use" ($\chi^2 = 6.68$, $p = .04$). When I explored the instrumental variables, "disposable time" and "shopping-related Internet use" passed the relevant test ($\chi^2 = 0.00$, $p = .94$). Therefore, I dropped "degree of gaming-related Internet use" from consideration and conducted an analysis using a model made up of 24 variables.

[B] In an analysis model using the "xenophobic feelings toward foreigners" factor and "amount of Internet use" as target variables, the test results for instrumental variables were not significant for either target variable (the two instrumental variables for xenophobic feelings were $\chi^2 = 3.84$, $p = .15$ and the three instrumental variables for amount of Internet use were $\chi^2 = 1.12$, $p = .29$). Subsequently, I adopted a model using the 25 variables with no change.

In addition, the instrumental variable X_a, had to possess a sufficient strength of correlation for predicting the target variable Y_a. In this regard, the F statistic for the coefficient of partial determination (partial R^2) which represents the contribution of instrumental variables in the

[11] Political distrust was calculated by simply adding and reversing the scores (on a 5-point scale from "Agree" to "Disagree") for answers to the statements "A single vote cast by the people in an election has an effect on national politics" and "The views and hopes of the people are reflected in national politics." Political interest used the response value for the statement "I am usually interested in politics," while political authoritarianism used the response value for the statement "Politics is best left to politicians and experts" (in both cases scored on a 5-point scale). In terms of support for the LDP and Kōmeitō, I used a dummy variable with a value of 1 in cases where the respondent had voted for either of these parties in proportional representation for the Lower House election held in the month prior to conducting the survey, and of 0 otherwise.

first-stage regression of 2SLS, serves as an indication of whether the strength of correlation is sufficient. In the revised model [A], for the instrumental variables concerning "positive evaluation of foreigners", $F = 231.06$, and for "amount of Internet use," $F = 48.85$. Meanwhile, in model [B], for "xenophobic feelings," $F = 173.55$, and for "amount of Internet use," $F = 99.11$. According to Stock and Yogo (2005), it is desirable that $F > 19.93$ in the case of two instrumental variables and $F > 22.30$ in the case of three instrumental variables. The F values fully satisfied these criteria in both models, and there were no problems with the strength of the instrumental variables.

Now we move on to the description of the results of the parameter estimation by 2SLS based on the models identified above.

In model [A], for the path from "amount of Internet use" to "positive evaluation of foreigners," a significant positive association was confirmed with a standardization coefficient value of .07 ($p = .002$). In other words, use of the Internet can be said to have the causal effect of heightening anti-racist attitudes. On the other hand, the path from "positive evaluation of foreigners" to "amount of Internet use" had a standardization coefficient value of .01, indicating the virtual absence of any association ($p = .851$).

In model [B], the path from "amount of Internet use" to "xenophobic feelings toward foreigners" was shown to have a significant positive coefficient value of .09 ($p = .000$). It can thus be said that use of the Internet has the causal effect of exacerbating racist attitudes (even as it heightens anti-racist attitudes). Regarding the opposite path from "xenophobic feelings toward foreigners" to "amount of Internet use," a negative coefficient value of −.02 was observed but was not significant ($p = .47$).

Since coefficient values for the control variables (and instrumental variables) and their significance levels were almost the same as the results of estimations using FIML, I will omit them here in consideration of space.

Next, Table 4 shows the results of estimation by FIML.[12)] Here, too, when examining model [A], a significant positive coefficient value of .14 appeared on the path from "amount of Internet use" to "positive evaluation of foreigners" ($p = .001$), while the opposite path was not significant ($p = .85$). Similarly, in [B], as well, the path from "amount of Internet use" to "xenophobic feelings toward foreigners" was shown to have a significant positive coefficient value of .19 ($p = .000$), but the opposite path did not attain a level of significance ($p = .44$).

Regarding the fitness of the model as a whole, the results of the likelihood ratio test for both [A] and [B] were non-significant, and goodness-of-fit was very good in terms of the respective index values of RMSEA, CFI, TLI, and SRMR. Correlation between error terms was also

[12)] While the question of whether relationships between variables in a feedback loop converge in a stable manner can become an issue in the case of a non-recursive covariance structure model like Figure 1, where the stability index is between -1 and +1 they will be said to be stable (Bentler and Freeman 1983). As the respective stability indices for models [A] and [B] are 0.47 and 0.95, no particular problems were evident.

Table 4. Results of Analysis by the Synchronous Effects Model

(n = 4,007)	[A] Positive evaluation of foreigners	[A] Amount of Internet use	[B] Xenophobic feelings toward foreigners	[B] Amount of Internet use
Positive evaluation of foreigners	—	−.02	—	—
Xenophobic feelings toward foreigners	—	—	—	−.05
Amount of Internet use (log)	.14***	—	.19***	—
Amount of TV watched	.02	.09***	−.01	.09***
Amount of newspapers read	.05**	−.12***	−.01	−.12***
Degree of Internet use to access abroad	.07***	.06***	.01	.05***
Sex (male dummy)	−.03†	.08***	−.04*	.07***
Age	−.03†	−.03†	.03†	−.01
Years of education	.02	−.03†	−.01	−.02
Subjective economic situation	.00	−.10***	−.04*	−.10***
Student dummy	.09***	.03	−.09***	.02
Full-time house-wife/husband dummy	.01	.00	.05**	−.01
Unemployed dummy	.01	.09***	−.05**	.08***
General trust	.17***	−.07***	−.05**	−.07***
Loneliness	−.08***	.04*	.03†	.05**
Political distrust	−.03†	.00	−.09***	.00
Political interest	.12***	.03†	.11***	.04*
Political authoritarianism	.09***	.01	.13***	.02
LDP support	−.08***	.02	.10***	.03†
Kōmeitō support	.01	−.01	−.02	−.01
Negative experience of contact with foreigners	−.17***	—	.27***	—
Positive experience of contact with foreigners	.19***	—	−.21***	—
Disposable time (log)	—	.33***	—	.33***
Degree of shopping-related Internet use	—	.14***	—	.14***
Degree of gaming-related Internet use	—	—	—	.10***
Bentler-Raykov R^2	.14***	.22***	.15***	.23***
Correlation between error terms	−.17 (p = .08)		−.11 (p = .15)	
χ^2 of likelihood-ratio test	1.34 (p = .51)		5.42 (p = .14)	
RMSEA	0.00		0.01	
CFI	1.00		1.00	
TLI	1.01		0.98	
SRMR	0.00		0.00	

Notes: The values presented are standardized coefficient β; *** $p < .001$, ** $p < .01$, * $p < .05$, † $p < .10$.

non-significant, and as a model it seemed that sufficient independent variables were largely included (although a *p*-value reached 10% level for [A]).

The effects of the control variables were mostly consistent with the results of previous studies (though there is not sufficient space to check each individual point here). Here, when we compare the coefficient value of .14 for Internet use, which was confirmed to have a significant causal effect on [A], positive evaluation of foreigners, with the coefficient values for the control variable group, we find that the only variable to surpass Internet use (excepting instrumental variables) is general trust, at .17. In addition, for [B], xenophobic feelings toward foreigners, we find no control variables that show an effect surpassing the coefficient value for Internet use at .19. This suggests that Internet use has an effect that is by no means small, even compared to factors that have been addressed in previous quantitative studies of racist nationalism.

7. Conclusions and Discussion

The direction of causality whereby Internet use heightens both positive evaluations of foreigners and xenophobic feelings toward foreigners is supported by the results of analysis by both 2SLS and FIML. On the other hand, no support was found for the opposite causality in either case. Moreover, in model [A], by removing the path from positive evaluation of foreigners to amount of Internet use to conduct a re-analysis, AIC drops from 271389 to 271387, and BIC from 271672 to 271664, improving the model's goodness of fit. In the case of [B], too, re-analysis reduces AIC from 285149 to 285147 and BIC from 285438 to 285431, improving goodness of fit. From this fact, as well, we can conclude that while use of the Internet acts to heighten both racist and anti-racist attitudes, no opposite causal relation can be found.

So why does Internet use have this *bi-directional* causal effect, such that it heightens both racist and anti-racist attitudes? A powerful hypothesis in this regard, as noted in Section 2, is that this effect derives from selective exposure to information and to other people. From the data in this survey, too, we can find differences between the websites most often used by individuals prone to a positive evaluation of foreigners and those prone to xenophobic feelings toward foreigners.

Although coefficient values are omitted, though the strength of xenophobic feelings is significantly positively correlated to the frequency of reading the textboard *2ch.net* and the frequency of reading its *matome* sites (aggregator sites),[13] neither of these are correlated at all with the strength of positive evaluations. In addition, when analyzing associations with frequently visited online news sites (multiple responses), with regard to major newspaper sites, the strength of xenophobic feelings shows a positive correlation with *Yomiuri Shinbun* and *Sankei Shinbun* and a negative correlation with *Asahi Shinbun* and *Mainichi Shinbun*, and in terms of emerging

[13] This has also been pointed out in previous studies by Tsuji (2017) and Taka (2015).

news sites shows a positive correlation with *J-CAST* and *getnews.jp* and a negative correlation with *The Huffington Post* and *Buzzfeed*. On the other hand, the strength of positive evaluation can be seen to be positively correlated with all major newspaper sites except the *Sankei Shinbun*, and in terms of emerging sites to have no correlation with the former two sites and a positive correlation with the latter two.

One potential future challenge when pursuing this bi-directional effect by selective exposure to such information and other people would be to follow up the results of the present analysis with data from a survey using a randomly selected sample.[14)] In addition, it would bolster the present findings to analyze individuals' *internal* changes resulting from use of the Internet by means of a longitudinal panel survey. The analysis in this paper, being based on cross-sectional survey data, assumes that such *internal* attitudinal changes are virtually equivalent to attitudinal variance *among* individuals that arise from use of the Internet—another limitation of the present study.

Finally, this analysis and its findings gives rise to important social implications. Given that use of the Internet has the effect of exacerbating racist attitudes, in the future, as the center of the information environment shifts further from the mass media toward the Internet, it is fully conceivable that more people will begin to harbor stronger racist attitudes. On the other hand, because use of the Internet also has the effect of heightening anti-racist attitudes, it may work as a neutralizing agent, so to speak, making it harder for society as a whole to drift *uniformly* in a more racist direction. Nonetheless, the most likely outcome is that thanks to the increase in the number of people with extreme views, public opinion on matters like the agenda concerning resident foreigners in Japan and diplomatic relations with neighboring Asian countries will become increasingly *bi-polarized*, thereby aggravating social conflict and division.

What can we do to bridge this gulf? How can we open dialogue and a path of mutual respect between people and groups with such widely divergent views and values? Thinking about and seeking out workable strategies in this area will lead us toward a society in which minorities are not excluded. This is perhaps the greatest challenge for us to address moving forward.

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[14)] However, according to Todoroki and Kaeriyama (2014), even when based on online survey samples from publicly recruited monitors such as the one discussed here, the results regarding correlations between variables showed a high degree of similarity with the ones from random sampling data. In addition, though it included limitations such as the generalizable validity of the instrumental variables, a separate online survey (carried out in 2016) in which I also took part obtained results that suggested causal effects in a direction similar to that found in this paper (Kitamura et al. 2018). These facts could be said to impart credibility to the findings of this paper.

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