大阪大学
感染症総合教育研究拠点
CiDER
CENTER FOR
INFECTIOUS DISEASE EDUCATION
AND RESEARCH

CiDER-DP

Center for Infectious Disease Education and Research, Discussion Paper

DP006

Wearing School Uniforms in Childhood Linked with Wearing Anti-COVID-19 Masks in Adulthood through Other-Regarding Preferences: An Instrumental Variable Approach

Sun Youn Lee, Meiji Gakuin University

Shusaku Sasaki, Osaka University

Fumio Ohtake, Osaka University

Wearing School Uniforms in Childhood Linked with Wearing Anti-COVID-19 Masks in Adulthood through Other-Regarding Preferences: An Instrumental Variable Approach[†]

Sun Youn Lee[1], Shusaku Sasaki[2], Fumio Ohtake[3]

First Draft: October 24, 2023

Abstract

Amidst the ongoing COVID-19 pandemic's gradual subsidence, governments worldwide, including Japan, had commenced the relaxation of mandatory mask-wearing regulations as of July 2022 at the time of this research. Despite the relaxation, a considerable number of individuals in Japan continued to wear masks in public settings, even when no longer obligatory. While recent research has explored risk-averse and psychological factors underpinning this behavior, we posit that in the Japanese context, an individual's mask usage is intricately tied to their school experiences during childhood and their preferences in relation to others (namely, other-regarding preferences) that could be influenced by these childhood experiences, given the close connection between the education system and societal values. Our study centers on the impact of wearing school uniforms during elementary school, a pivotal childhood experience in Japan. This experience could potentially shape an individual's sense of similarity with others during their formative years. By utilizing exogenous variations stemming from the expansion of the apparel industry across regions—a strategy employed by the Japanese government to boost the economy—we aim to investigate the *causal* effect of school uniforms. Our findings unveil a distinctive association, albeit confined to the younger cohort, wherein individuals who wore school uniforms during childhood tend to persistently wear masks when in the presence of local people, even when no mandate for mask-wearing exists due to significant physical distancing. These formative childhood experiences, which our research has found to be significantly correlated with other-regarding preferences such as reciprocal inclinations and prosocial tendencies, can influence younger individuals to adhere to behavioral norms within their social groups.

Keywords: COVID-19, school uniform, social preference, mask wearing, instrumental variable
JEL Classification Number: D90, D91, I12

[†] We obtained ex-ante approval from the ethics committee of the Graduate School of Economics, Osaka University [No. R40627]. This study is supported by the Grant-in-Aid for Scientific Research [Grant No.20H05632] provided by the Japan Society for the Promotion of Science to Fumio Ohtake, and the JST PRESTO [Grant No. JPMJPR21R4] provided by the Japan Science and Technology Agency to Sasaki Shusaku. The authors are responsible for any errors in this article.

[1] Corresponding Author, Faculty of International Studies, Meiji Gakuin University, E-mail: sylee@k.meijigakuin.ac.jp

[2] Center for Infectious Disease Educzation and Research (CiDER), Osaka University, E-mail: ssasaki.econ@cider.osaka-u.ac.jp

[3] Center for Infectious Disease Education and Research, Osaka University (CiDER), Graduate School of Economics, E-mail: ohtake@cider.osaka-u.ac.jp

1. Introduction

Mask usage has been widely recognized as one of the most effective measures to curtail the transmission of respiratory diseases to others within the community, receiving significant emphasis from various governments, and being embraced by the general public (Latkin et al., 2021; World Health Organization (WHO), 2022). As the pandemic waned and the post-pandemic era dawned, many governments relaxed mandatory mask-wearing mandates, leading to mask-wearing becoming a personal choice in the majority of countries as of July 2022 at the time of this research. Despite the relaxation of these regulations, some individuals continued to opt for wearing masks when in the presence of others, driven by concerns about disease transmission to themselves and others. This behavior persisted even in situations where significant physical distancing was maintained, and people were not engaged in close interactions. Recent research delves into the social and psychological factors influencing this mask-wearing behavior, highlighting the significant impact of social norms and conformity within society (Nakayachi et al., 2020). Additionally, individual preferences related to others (referred to as other-regarding preferences or social preferences), altruistic tendencies, empathy, the influences of social connections, and self-regarding (or others-regarding) risk-averse tendencies have been identified as contributing factors (Asri et al., 2021; Cheng et al., 2020; Pfattheicher et al., 2020; Tunçgenç et al., 2021).

This article examines mask usage among individuals living in Japan, which is renowned for having the highest life expectancy at birth and citizens' heightened awareness of hygiene in various facets of daily life (Ikeda et al., 2011). A significant number of people in Japan continued to wear masks even when the Japanese government had released guidelines indicating that wearing masks outdoors was deemed unnecessary, except in situations where individuals engaged in conversations within a 2-meter distance (Ministry of Health, Labour, and Welfare, 2022). Given the potential link between health-related behavior and social influences, as indicated by previous research (Asri, et al., 2021; Nakayachi et al., 2020; Tunçgenç, et al., 2021), this study observes people's behavior in a quasi-experimental survey setting influenced by their social ties and concern for others. By investigating potential differences in behavior when social ties are influential, our primary goal is to identify an unconscious but significant factor that motivates individuals to be mindful of others in their community, leading to persistent mask-wearing despite sufficient distancing. We focus on a prominent childhood experience in Japan—the wearing of school uniforms—suggesting that individual preferences for social interactions (hereafter, other-regarding preferences) develop early in life through experiences of wearing school uniform and accumulate over time. Considering the close relationship between the education system and social norms, and recognizing the significance of elucidating this connection to inform future public health policies and school education initiatives, this study aims to unravel the origins and evolution of hygiene-related behavioral tendencies within society, as shaped by individuals' childhood experiences.

Numerous studies have explored the impact of uniforms on various aspects such as conformity to institutional objectives, classroom discipline (Murry, 1997; Stover, 1990), a sense of

unity (Brunsma and Rockquemore, 1998), and self-concepts (Jarchow, 1992). These investigations have highlighted the influence of school uniforms on how individuals perceive others as well as themselves, potentially shaping their preferences for interpersonal interactions. The influence of these other-regarding preferences is supported by a significant body of empirical evidence across sociology, psychology, and economics, demonstrating their impact on individuals' social and economic choices (Fehr and Schmidt, 2006). Such preferences extend to activities like voting (Fong, 2001), property rights allocation (Anderhub, Gachter, and Konigstein, 2002), and variations in wage earnings (Bewley, 1999). Motivated by the aforementioned relevant literature, Lee et al. (2021) explored the impact of childhood school uniform experiences on the development of other-regarding preferences in individuals' later lives. Utilizing economic and political exogenous factors as instruments, the study identified a causal relationship between school uniform wearing and the formation of reciprocal and distributive preferences.

In line with the previous literature, our investigation centers on the impact of wearing school uniforms during elementary school, an essential childhood experience in Japan, on the hygiene-related behaviors in later life. We postulate that, in the Japanese context that places great emphasis on the awareness of others in the community, mutual commitments in building social relationships (Yamagishi and Yamagishi, 1994), the mask usage can be directly linked with these other-regarding preferences, which can significantly be influenced by an individual's school experiences during childhood. However, isolating the causal effect of this childhood experience poses challenges. School uniform policies in elementary schools serve multiple purposes, such as enhancing educational motivation, reducing the burden on working parents, and promoting school administration objectives that prioritize school discipline (Bamba, 2009; Namba, 2018), which can affect students' behavioral traits in later life. These multiple unobserved factors need to be disentangled to examine the direct and causal effect of the experiences of wearing school uniforms on the later-life behaviors including the mask wearing. For this, we utilized external variations resulting from the expansion of the apparel industry across different regions, a strategy implemented by the Japanese government to stimulate economic growth, to examine the "causal" impact of school uniforms.

The primary findings of this study reveal that younger individuals with experiences of wearing school uniforms tend to choose to wear masks in situations where it is not mandatory but when local people are in visible proximity. Considering the significant physical distance between individuals, their decision to wear masks seems to be influenced less by disease mitigation and more by their concern for how they are perceived by others. The connection between these other-regarding preferences, which encompass the concept of mutual expectations, perceptions, and commitments, and childhood experiences, is only evident among the young cohort. This suggests that the young cohort may subconsciously draw upon these ingrained other-regarding preferences developed during their childhood school environment when deciding whether to wear masks.

Our objective is to make a contribution to the existing body of literature concerning the

educational, economic, behavioral, and psychological factors associated with public hygiene practices during and post-pandemic. We aim to achieve this by presenting our empirical findings, which illuminate the underlying factors influencing individual behavior, particularly those established during the early developmental stages within a school environment. This added insight has the potential to enhance our comprehension of societal dynamics and individual behaviors in the country under study, thereby offering valuable implications for the formulation of future school policies and public health strategies.

2. Research Context and Survey Design

This research was conducted during a period when the Japanese government had issued guidelines stating that mask-wearing was not considered necessary outdoors, except in scenarios where individuals engaged in conversations within a distance of 2 meters (Ministry of Health, Labour, and Welfare, 2022). We deliberately designed the study setting to involve individuals positioned more than 2 meters apart from each other, aiming to identify those who exhibit a consistent tendency to wear masks even in this situation. Furthermore, we differentiate this setting based on the presence of others, operating under the assumption that the inclination for constant mask-wearing can be reinforced when individuals from the same community are present, especially if they possess stronger preferences and tendencies to be conscious of others. In this context, wearing a mask does not serve the purpose of disease prevention but rather reflects a (un)conscious concern about how one is perceived by others.

We posit that individuals inclined towards considering others' perspectives are more likely to adhere to mask-wearing, even when in the presence of others situated at a distance exceeding 2 meters. Our primary research objective is to identify the underlying driver motivating individuals to wear masks in the aforementioned scenario. We theorize that individuals' perceptions of others are shaped and developed during childhood, significantly influencing their subsequent behaviors related to social interactions. Of childhood education and experiences that affect the formulation of individuals' perceptions, our focus centers on whether respondents wore school uniforms during their elementary school years.

To address this hypothesis, we conducted an online survey utilizing quasi-experimental scenarios through MyVoice.com Ltd., a platform specializing in online surveys and experiments. The platform has a registered user base of approximately one million adults residing throughout Japan who serve as response monitors. From this extensive pool, we carefully selected 6,000 participants, aiming to mirror the proportions of a nationally representative sample in terms of age (20-69 years), gender (male and female), and region (across 10 geographical areas). Out of these participants, 5,652 were ultimately utilized for our primary estimation. We conducted separate estimations based on the mean age, aligning with our hypothesis that childhood experiences may influence later-life hygiene behavior in distinct ways for younger individuals (ages 22 to 48)

compared to older cohorts (ages 49 to 67). This differentiation takes into consideration variables that could differ depending on the age group, such as the duration since elementary school graduation and pertinent medical considerations. Furthermore, for the purpose of robustness checks, we conducted additional estimations using a subset of the sample that attended public elementary schools and those who reported never changing elementary schools. This approach was taken to account for potential biases in cases where respondents changed schools, which might affect the direct relevance of prefectural information about their home address at the age of six to their experience of wearing school uniforms.

2.1. Primary Outcomes: Mask-Wearing Behavior

We constructed three outcome variables that indicate an individual's decision to wear a mask where the scenario is different, using two sets of questions for non-anonymous and anonymous situations. The foundational questions designed for a quasi-experimental scenario to measure respondents' mask-wearing choices in each of the anonymous and non-anonymous situations are as follows. For a non-anonymous situation, currently, you are outdoors, walking alone on a sidewalk along a "one-way, two-lane major road." There is no one else walking on your side of the sidewalk, and no cars are passing by. On the other hand, on the opposite side of the sidewalk, "you can see many people from your local area walking together." In this situation, would you choose to wear a mask, or would you completely remove your mask? In contrast, as for the anonymous situation, the scenario of the presence of local people within sight distance is changed to "there is no one else walking" on the opposite side of the sidewalk (Q1 and Q2 in Appendix 1).

It is worth emphasizing once more that at the time of the research, the Japanese government had issued guidelines stating that wearing masks outdoors was considered unnecessary, except when individuals engaged in conversations within a 2-meter distance (Ministry of Health, Labour, and Welfare, 2022). We intentionally designed the study scenario with individuals positioned over 2 meters apart from each other, specifically to identify those who consistently demonstrate the tendency to wear masks even in such circumstances. Approximately 70% of respondents indicated that they would remove their masks when there is no one around. However, the percentage of those who would do the same in a situation where people are present decreased to 50% (Panel A in Table 1). It is reasonable to anticipate that individuals are more likely to wear masks when not alone. However, it's important to recognize that our quasi-experimental setup situates the presence of others at a distance greater than 2 meters, where wearing masks are not required. Our focus is directed towards individuals who adjust their mask-wearing behavior in response to the presence or absence of others in these scenarios.

To explore these behavioral changes in mask-wearing, we derived a variable by subtracting responses in anonymous situations from those in non-anonymous situations, which is

our first outcome variable. Given that responses to each question are binary (1 indicating mask removal, 0 otherwise), a value of 1 (approximately 22% of respondents) reflects individuals who only remove masks in anonymous scenarios. Conversely, a value of 0 (approximately 77%) indicates a consistent choice of mask removal or retention in both anonymous and non-anonymous scenarios (Panel A in Table 1). Moreover, a value of -1 (approximately 2%) signifies those who solely remove masks when others are present on the opposite sidewalk. As this particular behavior, indicated by a value of -1, may be influenced by measurement errors or unpredictable actions, we treated them as either 0 or omitted from analyses. In subsequent sections, since the results are not significantly different[4] and we plan to utilize a larger sample for other outcome variables, we provide results that incorporate these cases as 0 within the sample. We also discuss outcomes achieved without their inclusion in Section 4.

[**Table 1** is here]

Subsequent to the foundational questions (Question 1 and Question 2 in Appendix 1), we conducted a series of four additional questions to evaluate individuals' Willingness to Pay (WTP) or Willingness to Accept (WTA) concerning the choice to wear or remove masks (from Questions 1-1P to 1-2A in Appendix 1) in both non-anonymous and anonymous situations. More specifically, we assessed an individual's WTP for their decision to wear or remove a mask and their WTA to switch from one choice of mask-wearing behavior to the other. These WTP and WTA questions encompassed a range of amounts, from JPY 1 to 500, and we calculated the mean values of the preceding and current choices, with the initial choice allowing for 0 and the final choice allowing for 700. To transform the WTA amounts into WTP, we used negative payments, resulting in a WTP range of -600 to 600 for both wearing and removing masks.

After this conversion, we generated four distinct variables representing WTP for wearing masks and WTP for removing masks in both anonymous and non-anonymous situations (variables C to F, as displayed in Panel B and C of Table 1). Subsequently, we constructed our second and third outcome variables. The second outcome variable, WTP for wearing masks, was generated by subtracting WTP responses in anonymous situations (D) from those in non-anonymous situations (C). A higher value in this variable indicates a greater willingness to pay for wearing masks when in the presence of others, reflecting a stronger preference for wearing masks in crowded situations. Conversely, the third outcome variable, WTP for removing masks, was obtained by subtracting WTP responses in non-anonymous situations (F) from those in anonymous situations (E). A higher value in this variable signifies a higher willingness to pay for removing masks when alone. This captures the inclination to pay more for the freedom to remove masks when no one is present. Thus,

[4] The results are detailed in Section 4 and provided in Appendix 7.

the second and third outcomes similarly imply a stronger preference for wearing masks only in the presence of others.

2.2. Secondary Outcomes: Other-regarding Preferences

In order to gain insight into the potential underlying mechanism explaining the impact of childhood experiences wearing school uniforms on adult mask-wearing tendencies, we aim to explore the connection between school uniforms and other-regarding preferences, including reciprocal inclinations and inequity aversion, during adulthood. To establish this connection, we initially constructed variables to assess positive and negative reciprocal preferences by asking respondents to rate their level of agreement with the following statements: (i) "If others do me a favor, I am prepared to return it;" (ii) "If others treat me in a very hostile manner, I will make sacrifices until I can exact revenge on them, even if it may come at a high cost." Ratings for each statement were provided on a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). We also computed the average value of positive and negative reciprocity.

Furthermore, we assessed distributive preferences by gauging the degree of inequity aversion. Building on the approach employed by Bartling, et al. (2009)[5] and guided by the work of Sheremeta and Shields (2013), respondents were categorized into three groups: those who are ahead-averse, those who are behind-averse, and those who are prosocial. The first two categories prefer equal treatment with others, regardless of whether they receive more or less, respectively. On the other hand, those classified as prosocial are inclined to enhance the wealth of others if doing so does not impact their own wealth, implying that they can contribute to others' well-being without personal cost.

According to our data, with the mean value of positive reciprocity surpassing that of negative reciprocity (Appendix 2), respondents appear to exhibit a stronger inclination toward positive reciprocity. While this contrasts with findings from Offerman (1999) and Charness and Rabin (2002), where participants displayed a stronger inclination to punish harmful actions over rewarding friendly behavior, a similar tendency was observed in the study using Japanese data (Lee et al., 2021). Roughly 80% of our respondents demonstrate behind-averse and prosocial tendencies, regardless of their age cohort. In comparison, around 60% of the young cohort and 70% of the old cohort exhibit ahead-averse tendencies. The overall trend aligns with previous literature that has used Japanese data, although based on different samples (Lee et al., 2021).

[5] "Imagine either you or someone that you do not know personally receives some money. You can decide how much you and the anonymous other receive and the other person will not know your decision." The respondents were provided with four choices, and in each case they were expected to select either Option A (equal distribution, with 10,000 yen given to them and the "anonymous other") or Option B, under which the monetary amounts given to them/other varied as follows: Choice 1 (10,000 yen / 6,000 yen); Choice 2 (16,000 yen / 4,000 yen); Choice 3 (10,000 yen / 18,000 yen); and Choice 4 (11,000 yen / 19,000 yen).

2.3. School Uniforms in Japan

In Japan, elementary school (grades 1-6) and junior high school (grades 7-9) are mandatory, followed by senior high school and tertiary education. Public elementary schools are assigned based on family residential addresses, constituting about 98% of schools, while the remaining schools are private and national schools.[6] During the Meiji period (1868-1912), school uniforms were first introduced in elite schools, with only a limited number of institutions enforcing them (Bamba, 2009). In those early years, schools recommended dress codes referred to as "standard clothes," which were not compulsory uniforms (Namba, 2018). During the Taisho period (1912-1926), attitudes began to change when there was a growing preference for Western-style attire due to hygiene concerns and convenience. However, parents lacked the know-how to dress their children appropriately, leading schools to introduce various standard clothes options such as sailor suits and jumper skirts, which were practically seen as mandatory school uniforms since most students wore them every day (Namba, 2018).

Following World War II, there was a restructuring of pre-war junior high schools to accommodate compulsory education. In the 1960s, public junior high schools introduced uniform mandates, but they faced opposition from student protests and concerns regarding freedom of expression. Additionally, parental preferences varied, with some emphasizing academic focus and others valuing students' expression. Consequently, some schools abandoned uniform requirements, while others reinstated them in the late 1970s. These conflicting viewpoints, both in favor and against school uniform policies, especially during the 1960s and 1970s, resulted in differences in the adoption of uniforms both between and within schools and prefectures. These variations underscore the importance of considering endogenous effects when assessing the impact of uniforms. This study posits that as uniform implementation reflects parental and school preferences, these preferences can influence school uniform policies and potentially shape students' preferences, subsequently impacting their hygiene-related behavioral tendencies, including mask-wearing behaviors, later in life.

According to our data, the proportion of respondents who wore school uniforms during their elementary school years is approximately 23%[7], and this percentage remains similar across different age cohorts (see Appendix 2). The distribution of school uniform experiences varies significantly among prefectures, as demonstrated by the distinct differences observed (see Appendix 3). In specific prefectures such as Fukui, Kagawa, Okayama, and Shimane, the prevalence of childhood school uniform wear exceeded 85%, while, in other prefectures like Hokkaido, Nagano, and Akita, the percentage was less than 5%. In sum, while school uniform

[6] Relevant statistical information can be obtained from the MEXT website at https://www.mext.go.jp/b_menu/toukei/chousa01/kihon/1267995.htm

[7] According to the findings of an online survey conducted in 2013 by a private school uniform company, Kanko (https://kanko-gakuseifuku.co.jp/media/homeroom/131231), approximately 20% of Japanese elementary schools were reported to have implemented a school uniform policy.

adoption has generally increased in Japan since the 1960s, there are noticeable variations in the prevalence of adoption or abolishment across different prefectures over the past few decades. It is noteworthy that the overall trend is similar to related literature that used different samples (Lee et al., 2021).

2.4. Utilizing an Economic Exogenous Element as an Instrument

For our instrumental variable (IV), we first calculated the ratio of value added by the apparel industry to that generated by the manufacturing industry, denoted as "*Apparel*," based on data obtained from *Industry Statistics*. To cater to the age range of our respondents, spanning from 22 to 67 years, our focus was on the years 1960 to 2005, which encompassed the one-year periods preceding the respondents' enrollment in elementary school. To relate the *Apparel* information to each respondent, we utilized two pieces of information: the year in which they were five years old (i.e., the year before starting elementary school), and the prefecture of residence at age six, assuming that their family's residence remained constant in the preceding year. This entailed creating a matrix dataset spanning 45 years (from 1960 to 2005) multiplied by the 47 prefectures in Japan.

Our IV was then constructed based on the value of the *Apparel* in "neighboring" prefectures. To facilitate this, Japan's 47 prefectures were grouped into 10 administrative regions[8], and the average *Apparel* value for neighboring prefectures (excluding the one where the respondent lived at age six) was calculated. This approach was chosen due to the potential influence of neighboring prefectures' apparel industry status and school uniform production levels on the implementation of school uniform policies (Yamamura, 2009). It's essential to note that we deliberately focused on the *Apparel* in "neighboring" prefectures, as *Apparel* within one's own prefecture might be influenced by endogenous factors. That is, the adoption of school uniform policies could directly affect the demand for the local apparel industry, potentially creating a correlation between school uniforms and the *Apparel* within one's own prefecture. Moreover, considering that school decisions to implement uniform policies might be influenced by the prevailing trends in the regional apparel industry around the time of elementary school admission, for enhanced accuracy in capturing regional trends, we calculated the average *Apparel* value over the five-year period leading up to the respondents' enrollment in elementary school.

Significant variations in the IV are evident across prefectures during two distinct time periods, divided by age group: the young cohort (<49) and the old cohort (see Appendix 3). We organized the IV by prefecture, using the percentage of respondents who wore school uniforms during elementary school as a basis. Subsequently, we categorized the 47 prefectures into two groups, separating those with more than 10% of former residents who wore school uniforms from the rest.

[8] The 10 administrative regions are as follows: Hokkaido, Tohoku, Kanto (North/ South), Tokai, Hokuriku, Kinki, Chugoku, Shikoku, Kyushu (including Okinawa).

Notably, we observed that the apparel industry thrived in the former group of prefectures for both the young and old cohorts, implying the link between the prevalence of the apparel industry and the implementation of school uniform policies across prefectures.

3. Empirical Specifications

In our economic model, we use the following equations to examine factors influencing mask-wearing behavior.

$$y_{1i} = \beta x_{1i}(k_i|D_i = j) + \varepsilon_{1i},\ j\epsilon\{0,1\}\ (1)$$
$$y_{2i} = \beta x_{1i}(k_i|D_i = j) + \gamma x_{2i}(k_i|D_i = j) + \varepsilon_{2i},\ j\epsilon\{0,1\}\ (2)$$
$$\tilde{x}_{1i} = x_{1i} + u_i\ (3),$$

where y_{1i} and y_{2i} are a binary indicator representing whether an individual decide to wear a mask or not. These indicators are used to explore the impact of hypothesized scenarios on mask-wearing behavior. These scenarios involve a survey respondent walking alone on a sidewalk along a one-way, two-lane major road, with either no one else present or local people walking on the opposite sidewalk. The variable x_{1i} represents the intended width and distance that respondents are expected to perceive when answering the questions. However, individual biases may arise due to differences in perception among respondents. For example, the perceived width and distance of a two-lane major road may vary from person to person, or respondents may not fully grasp subtle differences between seemingly similar questions pertaining to anonymous and non-anonymous scenarios. In Eq. (3), $\tilde{x}_{1i}$ accounts for the width and distance between sidewalks as actually perceived by respondents, taking into consideration the aforementioned potential biases.[9]

Our main focus is on k_i, a binary indicator denoting whether an individual wore a school uniform during their elementary school years. To examine the uniform effects in the presence and absence of local people, we differentiate between non-anonymous and anonymous situations using the variable x_{2i}. This variable takes the value 1 if respondents can observe multiple people from their local area walking along on the opposite side of the sidewalk, and 0 otherwise. We reasonably assume that participants in this quasi-experimental setting should not have cognitive biases when understanding whether people are present on the opposite side of the sidewalk while reading and responding to the related questions.

We aim to eliminate errors stemming from individual perception differences and any potential presence bias when answering the two similar questions, as indicated by Eq. (3). For this, we subtracted Eq. (1) from Eq. (2), which benefits from responses provided by the same individuals, helping address

[9] By incorporating Eq. (3) into Eq. (1), we can arrange the equation as follows.

$$y_{1i} = \beta(\tilde{x}_{1i} - u_i)k_i + \varepsilon_{1i}$$
$$= \beta\tilde{x}_{1i}k_i + (\varepsilon_{1i} - \beta u_i k_i)$$
$$\hat{\beta} = \frac{Cov(\tilde{x}k,y)}{Var(\tilde{x}k)} = \frac{Cov((x+u)k,\beta xk+\varepsilon)}{Var((x+u)k)},\ plim\hat{\beta} = \frac{\beta\sigma_x^2}{\sigma_x^2+\sigma_u^2}$$

Considering Eq. (1), biases may arise due to measurement errors, leading to a downward bias towards zero.

(un)observed individual factors, and the potential variations in how respondents interpreted the quasi-experimental scenarios. The focus of our analysis is represented by Eq. (4), derived from the subtraction of Eq. (1) and (2), which removes individual fixed factors (e.g., gender, age, education, etc.).

$$Y_i(y_{2i}-y_{1i}) = \gamma x_{2i} k_i + \varepsilon_{2i} - \varepsilon_{1i} \quad (4)$$
$$Y_i(y_{2i}-y_{1i}) = \gamma x_{2i} k_i + \boldsymbol{X}_i \beta_X + \varepsilon_{2i} - \varepsilon_{1i} \quad (5)$$

In Eq. (5), we incorporate $\boldsymbol{X_i}$, a vector encompassing individual and household characteristics, that could be possibly correlated with a respondent's biases including perception differences in this quasi-experimental setting. This vector includes various individual characteristics, family variables, and background information related to household and parental attributes.[10] Even after subtracting Eq. (1) from Eq. (2) and adjusting for individual and household controls, notably, biases could still be correlated with the indicator of wearing school uniforms, denoted as $\varepsilon_{2i} - \varepsilon_{1i}$. Addressing these biases necessitates addressing two concerns: the non-random nature of introducing school uniform policies and potential self-sorting into schools with such policies.

$$k_i = \boldsymbol{Z}_i \alpha_1 + \delta X_i \alpha_X + \nu_i \quad (6)$$

To mitigate these concerns, we employ instrumental variable (IV) regression, expressed in Eq. (6), where $\boldsymbol{Z}_i$ serves as the IV. We conduct estimations both with and without controls (X_i) for both Eq. (4) and (5). Our IV, the ratio of value added by the apparel industry to that generated by the manufacturing industry (*Apparel*) in "neighboring" prefectures, is considered orthogonal to school and individual characteristics. The Eq. (6) is a first-stage equation, which is followed by the second stage Eq. (4) and (5) of the IV estimation.

All reported standard errors are clustered at the regional level, corresponding to the prefecture in which respondents lived at the age of six. For subsequent analyses, Eq. (4) and (5) are estimated separately by age, guided by our hypothesis that the effect of childhood experiences on later-life hygiene behavior may differ between younger and older cohorts. This distinction considers factors that could vary depending on the age cohort, such as the time span after elementary school graduation and relevant medical considerations.

[10] In particular, the individual characteristics encompass various factors, such as age dummies, gender, marital status, the type of elementary school attended (private, public, national, etc.), and educational attainment. Additionally, we consider family variables that are likely to influence individuals' decisions regarding mask-wearing. These family variables include the number of household members, the presence of a baby, elementary to high school students within the household, members aged over 65, and individuals with medical conditions, We also incorporate control variables related to the educational attainment of both the father and mother, and the employment status of both parents at the time when respondents were six years old that could impact the selection of an elementary school based on school uniform policies.

4. Main Results

In Table 2, we present the impact of our IV in the first-stage estimation. The upper panel displays results without controls, while the lower panel includes results with controls. Irrespective of the inclusion of controls, we observe a significant positive correlation between the average prevalence values of the *Apparel* in the "neighboring" prefectures, where students lived just before entering elementary school, and the implementation of school uniform policies. This finding strongly indicates that a higher prevalence of the apparel industry in neighboring prefectures enhances the probability of schools implementing school uniform policies during the examined years, possibly facilitated by the relatively lower cost of manufacturing school uniforms. Furthermore, it should be emphasized that the F values for all sample restrictions surpass the threshold of 10, a widely recognized criterion among researchers to indicate robust instrument strength and mitigate concerns about weak identification (Staiger and Stock, 2005).

[**Table 2** is here]

The main estimation results are reported in Table 3. We present results without controls in the upper panel, as shown in Eq. (4), and results with controls in the lower panel as indicated in Eq. (5). Our primary objective is to identify individuals who consistently prefer wearing masks in non-anonymous situations, characterized by the presence of many local people walking along on the opposite side of the sidewalk, while opting to remove their masks when alone. For this, we hypothesized that individuals who choose to wear masks in situations where it is not obligatory, but local people are within sight distance, may exhibit this behavior due to other-regarding preferences influenced by their childhood experiences of wearing school uniforms. Regardless of control adjustments, we found the tendency of wearing masks only in the presence of people form the local community exclusively within the young cohort, aged below 49, corresponding to the mean age of our sample. The choice of mask-wearing among the young cohort in the presence of local community members suggests that, despite the absence of mandatory mask requirements due to a substantial distance from others, their awareness of fellow community members motivates them to consistently wear masks.

[**Table 3** is here]

In particular, findings from the first column of the young cohort reveal a significant factor influencing the inclination to consistently wear masks in non-anonymous situations—the experience of wearing school uniforms during elementary school years. This discovery indicates that young individuals who wore uniforms are more likely to wear masks when surrounded by local people. This inclination becomes further evident when examining various variables related to

willingness to pay (WTP) for wearing masks, as shown in the second and third columns. The positive correlation observed in the second column suggests that younger individuals with childhood experiences of wearing school uniforms are more likely to pay for wearing masks when among community members, who are in a substantial but recognizable distance. This coefficient is notably associated with WTP for non-anonymous situations compared to anonymous situations. Additionally, the third column reflects the opposite scenario in terms of mask usage, where young respondents are willing to pay to remove masks in anonymous situations against non-anonymous situations. The implications align with the second column, indicating that younger individuals with childhood experiences of wearing school uniforms tend to remove masks only when the local people are not present.

On the other hand, when Ordinary Least Squares (OLS) regressions are conducted using the identical sample size as that employed for the IV analysis in each outcome variable, the OLS coefficients tend to be smaller and often insignificant in all columns, with the exception of one case (i.e., WTP for removing masks in the third column among the entire sample) (Appendix 4). The differences in coefficients obtained from OLS and IV estimations suggest a downward bias attributed to endogenous factors related to childhood school uniform policies. Furthermore, we find the consistency of results remaining evident even when restricting the sample to those who attended public elementary schools (Appendix 5), and those who attended the same public elementary school for six years without transferring (Appendix 6). As discussed in Section 2.1, around 2% of respondents indicated a preference for wearing masks only in anonymous situations, which could result from measurement error or reflect unpredictable behavior. We conducted robustness checks by re-estimating the entire regressions without including this subset of samples (Appendix 7). The results for the robustness tests (Appendix 5 to 7) remained substantially consistent with those of the main estimation (Table 2). As their responses did not significantly affect the overall pattern of mask-wearing behaviors in quasi-experimental scenarios, we included these respondents when analyzing other outcome variables to maintain an adequate sample size.

5. Discussions

We observe a distinct age-based difference in mask-wearing tendencies linked to childhood experiences of school uniforms. This discrepancy could be attributed to the fact that the older cohort, facing a higher risk of infection during the pandemic, might adhere to mask-wearing in all scenarios as a precaution against disease (Asri et al., 2021; Omori et al., 2020). Consequently, given the limited variation in mask-wearing among the older cohort, individual disparities in childhood experiences and potential accumulated social preferences may not be influential in their health-related decision-making.

Another plausible explanation for mask-wearing tendencies at the presence of people from the same community only observed among the young cohort could be their significant concern for others within their community and their desire to be viewed as individuals who prioritize the well-being of others. This predisposition could have been cultivated through their experiences of wearing school

uniforms during childhood. To further explore the underlying mechanism of mask-wearing behavior when local people are present at a distance surpassing 2 meters, we employ Eq. (5) alongside outcome variables that encompass a range of other-regarding preferences. The results presented in Table 4 suggest that the younger cohort, who had experiences of wearing school uniforms during their elementary school years, exhibited the propensity for reciprocal behaviors and prosocial preferences over another individual's material payoffs, provided that one's own outcomes remain unaffected. These preferences embody the notion of valuing mutual interactions. Given the substantial distance between individuals, their decision to wear masks seems to be driven less by disease mitigation and more by their consideration for how they are perceived by others. In other words, these younger individuals, who demonstrate care for others and engage in reciprocal actions, may unconsciously draw upon these unconsciously learned other-regarding preferences from their childhood school environment when making decisions about mask-wearing.

[**Table 4** is here]

We further conducted regression analyses to explore whether the behavior of the young cohort is linked to the degree of conformity [11] as discussed in recent research (Nakayachi et al., 2020). The results revealed that individuals with school uniform experiences are more inclined to conform to others' behavior, especially among the older cohort.[12] This indicates that conformity to others' behavior might have an impact on their mask-wearing behavior, but it doesn't appear to be the primary factor driving the young cohort's decision to wear masks when others are in their sight distance. Rather, their choice to wear masks seems to be driven by their consideration for mutual relationships, commitments, and interactions, rather than mere compliance with the behavior of their acquaintances. Our finding concerning the other-regarding preferences of the younger cohort aligns with the research conducted by Asri et al. (2021), which established a link between self-regarding risk and other-regarding preferences and mask-wearing behavior among 840 employees from Swiss hospitals. Their study suggested that younger individuals emphasize concern for others, while older ones prioritize personal risk.

In contrast, individual inclinations and preferences towards others are not evident among the older cohort, and if present, they are inversely related to the childhood experiences of school uniforms. This suggests that childhood school experiences do not significantly influence their tendencies towards reciprocity. Notably, the older cohort with these school experiences does not exhibit a tendency for inequity aversion. These differences by the age cohort may be attributed to

[11] Additionally, we measured the degree of conformity by evaluating responses to the statement: "I feel reassured when I engage in behaviors similar to those of people around me."

[12] The results have not been reported but can be provided upon inquiry. The statistical significance of the relationship between prior school uniform experiences and the tendency to conform to others' behavior is observed at the 1% level only among the older cohort.

the passage of time since their elementary school graduation or the possibility that the school environment has varying associations with the development of social preferences depending on the time period.

The combined findings can be interpreted in line with previous research, suggesting that the behavior of the young cohort mirrors that of their peers. This strong sense of reciprocity is often driven by reciprocal fairness (Falk and Fischbacher, 2006; Rabin, 1993) and inequity aversion (Fehr and Schmidt, 1999), as well as the concept of similarity noted by Ordabayeva and Fernandes (2017) who observed a preference for egalitarian resource distribution among those who emphasize similarities over differences. We propose that these other-regarding preferences may be reinforced by environmental factors, such as school experiences, where a sense of belonging fostered by school uniforms (La Pointe, Hollomon, and Alleyne, 1993) can amplify such tendencies. These other-regarding preferences shaped by the childhood school experiences could then influence their health-related decision-making, such as mask-wearing behavior.

6. Concluding Remarks

The childhood experiences of wearing the same clothes could develop the ease of identifying ingroup members fosters mutual assurance, potentially leading to the development of reciprocal preferences and egalitarian attitudes in adulthood, as indicated in our study, which affects their later-life behavior. The implications of our findings hold significance for Japanese society, where networks and mutual commitments underpin the strength of relationships and cooperative behaviors. While Yamagishi and Yamagishi (1994) noted lower general trust levels among Japanese compared to Americans, they highlighted the distinct role of "mutual assurance" within Japanese society, driven by stable interpersonal and inter-organizational relationships and a distinct ingroup/outgroup divide (Yum, 1988). These preferences for reciprocity and inequity aversion, rooted in a culture of mutual assurance and group identity, elucidate the consistent mask-wearing behavior of the Japanese in the presence of others. This behavior can be traced back to childhood experiences with school uniforms. Mask-wearing goes beyond disease prevention; it reflects social preferences and interactions with others within the given society.

References

Anderhub, V., Gachter, S., & Konigstein, M. (2002). Efficient contracting and fair play in a simple principal–agent experiment. *Experimental Economics*, *5*(1), 5–27.

Asri A, Asri V, Renerte B, Föllmi-Heusi F, Leuppi JD, Muser J, et al. (2021) Wearing a mask—For yourself or for others? Behavioral correlates of mask wearing among COVID-19 frontline workers. PLoS ONE, *16*(7), e0253621. https://doi.org/10.1371/journal.pone.0253621

Bamba, M. (2009). The spread of the school uniforms and their role after World War II in Japan. *Journal of Home Economics of Japan*, *60*(8), 715–722.

Bartling, B., Fehr, E., Marechal, M. A., & Schunk, D. (2009). Egalitarianism and competitiveness. *American Economic Review*, *992*, 93–98.

Bewley, T. (1999). *Why wages don't fall during a recession*. Cambridge, MA: Harvard University Press.

Brunsma, D. L., & Rockquemore, K. A. (1998). Effects of student uniforms on attendance, behavior problems, substance use, and academic achievement. *The Journal of Educational Research*, *92*(1), 53–62.

Charness, G., & Rabin, M. (2002). Understanding social preferences with simple tests. *Quarterly Journal of Economics*, *117*, 817–869.

Cheng, K. K., Lam, T. H., & Leung, C. C. (2020). Wearing face masks in the community during the COVID-19 pandemic: Altruism and solidarity. *The Lancet*. *0*(0). pmid:32305074

Falk, A., & Fischbacher, U. (2006). A theory of reciprocity. *Games and Economic Behavior*, *54*(*2*), *293–315*.

Fehr, E., & Schmidt, K. M. (2006). The economics of fairness, reciprocity and altruism -- — experimental evidence and new theories. In K. Serge-Christophe, & M. Y. Jean (Eds.), *Handbook of the economics of giving, altruism and reciprocity* (pp. 615–691). North Holland: Elsevier.

Fong, C. M. (2001). Social preferences, self-interest, and the demand for redistribution. *Journal of Public Economics*, *82*, 225–246.

Ikeda, N., Saito, E., Kondo, N., Inoue, M., Ikeda, S., Satoh, T., Wada, K., Stickley, A., Katanoda, K., Mizoue, T., Noda, M., Iso, H., Fujino, Y., Sobue, T., Tsugane, S., Naghavi, M., Ezzati, M., & Shibuya, K. (2011). What has made the population of Japan healthy? Series: Japan: Universal Health Care at 50 Years. *The Lancet*, *378*, 1094–1105.

Jarchow, E. (1992). Ten ideas worth stealing from New Zealand. *Phi Delta Kappan*, *73*, 394–395.

La Pointe, V., Hollomon, L., & Alleyne, S. I. (1993). The role of dress codes and uniforms in urban schools. *NASSP Bulletin*, *76*(546), 36–40.

Latkin, C. A., Dayton, L., Yi, G., Colon, B., and Kong, X. (2021). Mask usage, social distancing, racial, and gender correlates of COVID-19 vaccine intentions among adults in the US. *PLoS One, 16*, e0246970. doi: 10.1371/journal.pone.0246970

Lee, S. Y., Ito, T., Kubota, K., & Ohtake, F. (2021). Reciprocal and prosocial tendencies cultivated by childhood school experiences: School uniforms and the related economic and political factors in Japan, *International Journal of Educational Development*, *83*, ISSN 0738-0593, https://doi.org/10.1016/j.ijedudev.2021.102396.

Ministry of Health, Labour, and Welfare (2022). Frontline of the New Coronavirus. https://www.mhlw.go.jp/stf/houdou_kouhou/kouhou_shuppan/magazine/202207_00003.html

Murry, R. K. (1997). The impact of school uniforms on school climate. *NASSP Bulletin*, *81*(593), 106–112.

Nakayachi, K, Ozaki, T, Shibata, Y. & Yokoi, R. (2020). Why do Japanese people use masks against COVID-19, Even though masks are unlikely to offer protection from infection? *Front. Psychol, 11*, 1918. doi: 10.3389/fpsyg.2020.01918

Namba, T. (2018). What is the meaning of "standard" of standard clothes in elementary school? *Toyokeizai Online: Career and Education*. Retrieved from https://toyokeizai.net/articles/-/210258

Offerman, T. (1999). Hurting hurts more than helping helps: The role of the self-serving bias. *Tinbergen Institute Discussion Papers 99-018/1*, Tinbergen Institute.

Omori, R., Matsuyama, R., & Nakata Y. (2020). The age distribution of mortality from novel coronavirus disease (COVID-19) suggests no large difference of susceptibility by age. *Scientific Reports*. *10*(1),16642. pmid:33024235

Ordabayeva, N., & Fernandes, D. (2017). Similarity focus and support for redistribution. *Journal of Experimental Social Psychology*, *72*, 67–74.

Pfattheicher, S., Nockur, L., Böhm, R., Sassenrath, C., & Petersen, M. B. (2020) The emotional path to action: empathy promotes physical distancing and wearing of face masks during the COVID-19 pandemic. *Psychological Science*. 095679762096442. pmid:32993455

Sheremeta, R., & Shields, T. (2013). Do liars believe? Beliefs and other-regarding preferences in sender−receiver games. *Journal of Economic Behavior and Organization*, *94*, 268–277.

Staiger, D., & Stock, J. (1997). Instrumental variables regression with weak instruments. *Econometrica*, *65*, 557–586.

Stover, D. (1990). The dress mess: Hair, hemlines, and hassles. *The American School Board*

Tunçgenç, B., El Zein, M., Sulik, J., Newson, M., Zhao, Y., Dezecache, G. & Deroy, O. (2021), Social influence matters: We follow pandemic guidelines most when our close circle does. *Br. J. Psychol.*, *112*, 763-780. https://doi.org/10.1111/bjop.12491

World Health Organization (2022). Coronavirus disease (COVID-19): Masks, Retrieved from: https://www.who.int/emergencies/diseases/novel-coronavirus-2019/question-and-answers-hub/q-a-detail/coronavirus-disease-covid-19-masks

Yamagishi, T., & Yamagishi, M. (1994). Trust and commitment in the United States and Japan. *Motivation and Emotion*, *18*, 129–166.

Yamamura, E (2009). Dynamics of social trust and human capital in the learning process: The case of the Japan garment cluster in the period 1968–2005. *Journal of Economic Behavior and Organization, 72*(1), 377–389.

Yum, J. O. (1988). The impact of Confucianism on interpersonal relationships and communication patterns in East Asia. *Communication Monographs*, *55*, 374–388.

Table 1. Outcome Variables: Mask-Wearing Behavior

	binary (A)		*binary* (B)		*binary* (A-B)	
	Wearing a Mask in the Non-anonymous Situation		Removing a Mask in the Anonymous Situation		Outcome 1: Wearing a Mask in the Non-anonymous Situation, but Removing a Mask in the Anonymous Situation	
Panel A	Mean	Std. dev.	Mean	Std. dev.	Mean	Std. dev.
Whole Sample (N=5,652)	0.20	0.44	0.69	0.46	0.49	0.50
Young Cohort - Age<49 (n=3,156)	0.19	0.44	0.68	0.47	0.48	0.50
Old Cohort - Age>=49 (n=2,496)	0.22	0.44	0.72	0.45	0.50	0.50
	continuous (C)		*continuous* (D)		*continuous* (C-D)	
	WTP for Wearing a Mask in the Non-anonymous Situation		WTP for Wearing a Mask in the Anonymous Situation		Outcome 2: The Difference in WTP for Wearing a Mask (from Non-anonymous to Anonymous)	
Panel B	Mean	Std. dev.	Mean	Std. dev.	Mean	Std. dev.
Whole Sample (N=5,489)	-13.85	265.93	-71.87	284.80	56.73	215.74
Young Cohort - Age<49 (n=3,051)	-10.21	253.80	-55.54	268.61	44.38	193.53
Old Cohort - Age>=49 (n=2,438)	-18.43	280.40	-92.33	302.68	72.18	239.81
	continuous (E)		*continuous* (F)		*continuous* (E-F)	
	WTP for Removing a Mask in the Anonymous Situation		WTP for Removing a Mask in the Non-anonymous Situation		Outcome 3: The Difference in WTP for Removing a Mask (from Anonymous to Non-anonymous)	
Panel C	Mean	Std. dev.	Mean	Std. dev.	Mean	Std. dev.
Whole Sample (N=5,494)	-50.73	246.22	-126.85	262.66	74.20	206.61
Young Cohort - Age<49 (n=3,054)	-50.26	244.90	-118.40	260.78	65.73	197.16
Old Cohort - Age>=49 (n=2,440)	-51.31	247.91	-137.46	264.67	84.79	217.43

Note: This table presents a summary of the descriptive statistics for outcome variables, labeled "outcome #no" in the far-right column, each derived from the subtraction of two sets of responses related to wearing/removing a mask in both anonymous and non-anonymous situations. These three outcome variables will be utilized as the primary outcomes in the subsequent analyses.

Table 2. IV Estimations - First Stage Results

Estimations w/o controls	Coefficient (Std. Err)	F-Value
Whole Sample	9.079 ***	17.27 ***
School Uniform Experiences (=1)	(2.184)	
Young Cohort - Age<49	7.204 ***	10.86 ***
School Uniform Experiences (=1)	(2.186)	
Old Cohort - Age>=49	13.669 ***	38.12 ***
School Uniform Experiences (=1)	(2.214)	
Estimations w/t controls	**Coefficient (Std. Err)**	**F-Value**
Whole Sample	9.289 ***	18.34 ***
School Uniform Experiences (=1)	(2.169)	
Young Cohort - Age<49	7.532 ***	11.38 ***
School Uniform Experiences (=1)	(2.233)	
Old Cohort - Age>=49	13.519 ***	36.67 ***
School Uniform Experiences (=1)	(2.232)	

Notes: We use, as an endogenous variable, a binary indicator denoting whether an individual wore a school uniform during their elementary school years and use, as an instrumental variable, the average *Apparel* in neighboring prefectures. The upper panel presents results of first stage estimation without controls, whereas the lower panel incorporates results with controls, which encompass individual characteristics and household backgrounds (refer to Appendix 2 for further details). Standard errors are indicated in parentheses. ***, **, and * denote significance levels of $p < .01$, $p < .05$, and $p < .1$, respectively.

Table 3. School Uniform and Mask Removal Behavior (IV Estimations - Second Stage Results)

Estimations w/o controls	(1) *binary* Outcome 1: Wearing a Mask in the Non-anonymous Situation, but Removing a Mask in the Anonymous Situation	(2) *continuous* Outcome 2: The Difference in WTP for Wearing a Mask (from Non-anonymous to Anonymous)	(3) *continuous* Outcome 3: The Difference in WTP for Removing a Mask (from Anonymous to Non-anonymous)
Whole Sample	0.0901**	31.7901	47.6305*
School Uniform Experiences (=1)	(0.045)	(24.227)	(27.568)
Young Cohort - Age<49	0.2175***	76.3400**	82.8013**
School Uniform Experiences (=1)	(0.083)	(32.644)	(40.615)
Old Cohort - Age>=49	-0.0575	-6.6886	16.8174
School Uniform Experiences (=1)	(0.058)	(36.062)	(33.689)

Estimations w/t controls	(4) *binary* Outcome 1: Wearing a Mask in the Non-anonymous Situation, but Removing a Mask in the Anonymous Situation	(5) *continuous* Outcome 2: The Difference in WTP for Wearing a Mask (from Non-anonymous to Anonymous)	(6) *continuous* Outcome 3: The Difference in WTP for Removing a Mask (from Anonymous to Non-anonymous)
Whole Sample	0.1032**	31.2048	50.0601*
School Uniform Experiences (=1)	(0.048)	(21.712)	(25.899)
Young Cohort - Age<49	0.2321***	72.4475**	82.6763**
School Uniform Experiences (=1)	(0.080)	(32.901)	(36.043)
Old Cohort - Age>=49	-0.0638	-15.4774	14.8409
School Uniform Experiences (=1)	(0.061)	(36.606)	(34.717)

Note: The upper panel presents results without controls, whereas the lower panel incorporates results with controls, which encompass individual characteristics and household backgrounds (refer to Appendix 2 for further details). Standard errors are indicated in parentheses. ***, **, and * denote significance levels of $p < .01$, $p < .05$, and $p < .1$, respectively.

Table 4. School Uniform and Other-regarding Preferences (Other IV Estimations - Second Stage Results)

Estimations w/t controls	(1) *binary* Prosociality	(2) *binary* Ahead Aversion	(3) *binary* Behind Aversion
Whole Sample	0.0359	-0.0726	-0.1138**
School Uniform Experiences (=1)	(0.041)	(0.054)	(0.048)
Young Cohort - Age<49	0.1233**	0.0383	-0.1141
School Uniform Experiences (=1)	(0.062)	(0.077)	(0.083)
Old Cohort - Age>=49	-0.0819*	-0.2108***	-0.0927
School Uniform Experiences (=1)	(0.048)	(0.082)	(0.060)

Estimations w/t controls	(4) *continuous* Total Reciprocity	(5) *continuous* Positive Reciprocity	(6) *continuous* Negative Reciprocity
Whole Sample	0.1399	0.1843**	0.0955
School Uniform Experiences (=1)	(0.106)	(0.092)	(0.157)
Young Cohort - Age<49	0.2791	0.3065*	0.2516
School Uniform Experiences (=1)	(0.178)	(0.176)	(0.229)
Old Cohort - Age>=49	-0.0658	0.0120	-0.1436
School Uniform Experiences (=1)	(0.100)	(0.119)	(0.147)

Note: The upper panel presents results without controls, whereas the lower panel incorporates results with controls, which encompass individual characteristics and household backgrounds (refer to Appendix 2 for further details). Standard errors are indicated in parentheses. ***, **, and * denote significance levels of $p < .01$, $p < .05$, and $p < .1$, respectively.

Appendix 1. Two Sets of Questions for Non-Anonymous and Anonymous Situations

I. First Set of Questions ("Non-anonymous" Situation):

Question 1. You are currently outdoors, walking alone on a sidewalk along a 'one-way, two-lane major road.' On your side of the sidewalk, there are no other pedestrians, and no cars are passing by. On the opposite side of the sidewalk, you can see many people from your local area walking together. In this scenario, would you choose to wear a mask or completely remove your mask?

Option 1. I would wear a mask.

Option 2. I would completely remove the mask.

Below are a series of four subsequent questions (i to iv).

If you have chosen option 1 in Question 1, please respond to the following questions, Questions 1-1P and 1-1A.

i. **Question 1-1P (Willingness-to-Pay):** Suppose that you would have to pay varying amounts of money as taxes **to continue wearing a mask**. In this scenario, would you be willing to pay any amount and keep the mask on? Or would you choose to remove the mask completely? Please provide your response for each specified amount of money.

I would pay 1 JPY and wear a mask.	I would remove the mask completely.
I would pay 5 JPY and wear a mask.	I would remove the mask completely.
I would pay 10 JPY and wear a mask.	I would remove the mask completely.
I would pay 50 JPY and wear a mask.	I would remove the mask completely.
I would pay 100 JPY and wear a mask.	I would remove the mask completely.
I would pay 200 JPY and wear a mask.	I would remove the mask completely.
I would pay 300 JPY and wear a mask.	I would remove the mask completely.
I would pay 500 JPY and wear a mask.	I would remove the mask completely.

ii. **Question 1-1A (Willingness-to-Accept):** Suppose you would receive varying amounts of money as subsidies **for stopping wearing the mask.** In this scenario, would you wear the mask? Or would you like to receive any amount and remove the mask completely? Please provide your response for each specified amount of money.

I would wear a mask.	I would receive 1 JPY and remove the mask completely.
I would wear a mask.	I would receive 5 JPY and remove the mask completely.
I would wear a mask.	I would receive 10 JPY and remove the mask completely.

I would wear a mask.	I would receive 50 JPY and remove the mask completely.
I would wear a mask.	I would receive 100 JPY and remove the mask completely.
I would wear a mask.	I would receive 200 JPY and remove the mask completely.
I would wear a mask.	I would receive 300 JPY and remove the mask completely.
I would wear a mask.	I would receive 500 JPY and remove the mask completely.

If you have chosen option 2 in Question 1, please respond to the following questions, Questions 1-2P and 1-2A.

iii. **Question 1-2P (Willingness-to-Pay):** Suppose that you would have to pay varying amounts of money as taxes **to remove the mask completely**. In this scenario, would you wear the mask? Or would you be willing to pay any amount and remove the mask completely? Please provide your response for each specified amount of money.

I would wear a mask.	I would pay 1 JPY and remove the mask completely.
I would wear a mask.	I would pay 5 JPY and remove the mask completely.
I would wear a mask.	I would pay 10 JPY and remove the mask completely.
I would wear a mask.	I would pay 50 JPY and remove the mask completely.
I would wear a mask.	I would pay 100 JPY and remove the mask completely.
I would wear a mask.	I would pay 200 JPY and remove the mask completely.
I would wear a mask.	I would pay 300 JPY and remove the mask completely.
I would wear a mask.	I would pay 500 JPY and remove the mask completely.

iv. **Question 1-2A (Willingness-to-Accept):** Suppose that you would receive the following amounts of money as subsidies **for starting to wear a mask.** In this scenario, would you like to receive any amount and start to wear a mask? Or would you remove the mask completely? Please provide your response for each specified amount of money.

v.

I would receive 1 JPY and wear a mask.	I would remove the mask completely.
I would receive 5 JPY and wear a mask.	I would remove the mask completely.
I would receive 10 JPY and wear a mask.	I would remove the mask completely.
I would receive 50 JPY and wear a mask.	I would remove the mask completely.
I would receive 100 JPY and wear a mask.	I would remove the mask completely.
I would receive 200 JPY and wear a mask.	I would remove the mask completely.
I would receive 300 JPY and wear a mask.	I would remove the mask completely.
I would receive 500 JPY and wear a mask.	I would remove the mask completely.

II. Second Set of Questions ("Anonymous" Situation):

Question 2. You are currently outdoors, walking alone on a sidewalk along a 'one-way, two-lane major road.' On your side of the sidewalk, there are no other pedestrians, and no cars are passing by. Furthermore, there is no one else walking' on the opposite side of the sidewalk. In this scenario, would you choose to wear a mask or completely remove your mask?

Option 1. I would wear a mask.

Option 2. I would completely remove the mask.

The same series of four subsequent questions (i to iv), as presented in the first set of questions, were provided in the same manner to assess WTP and WTA for each choice option in Question 2.

Appendix 2. Descriptive Statistics

	Whole Sample (N=5,652)	Young Cohort (N=3,156)	Old Cohort (N=2,496)
Main Independent Variable and IV			
School Uniform Experiences (=1)	0.232	0.232	0.232
Apparel in neighboring prefectures (IV)	0.015	0.015	0.014
Other-regarding preferences			
Ahead aversion	0.636	0.585	0.700
Behind aversion	0.802	0.759	0.857
Prosocial tendencies	0.857	0.848	0.868
Reciprocity (average)	3.519	3.501	3.541
Positive reciprocity	4.035	3.962	4.127
Negativer reciprocity	3.003	3.040	2.956
Individual and household characteristics			
Female (=1)	0.501	0.505	0.496
Years of education	14.531	14.625	14.411
Married (=1)	0.546	0.434	0.688
Number of cohabiting family members	2.860	3.027	2.648
Cohabiting infant/toddler (=1)	0.085	0.146	0.008
Cohabiting elementary school student (=1)	0.101	0.155	0.033
Cohabiting junior high school student (=1)	0.057	0.074	0.037
Cohabiting high school student (=1)	0.098	0.070	0.133
Cohabiting 65 years and older elderly (=1)	0.276	0.252	0.307
Cohabiting family employed in the medical industry (=1)	0.047	0.048	0.045
Household annual income	632.165	615.060	653.793
Household annual income information is not provided (=1)	0.174	0.179	0.167
Types of elementary school			
National	0.032	0.039	0.024
Public	0.938	0.924	0.956
Private (Buddhist)	0.003	0.004	0.002
Private (Catholic)	0.004	0.004	0.003
Private (Protestant)	0.002	0.003	0.000
Private (Other religious)	0.001	0.001	0.001
Private (Other)	0.021	0.026	0.014
Mother's Employment Status			
Employed full-time (Company/Government)	0.186	0.209	0.156
Employed full-time (Self-employed)	0.111	0.064	0.170
Employed part-time (Company/Government)	0.221	0.252	0.182
Employed part-time (Self-employed)	0.050	0.040	0.063
Neither employed nor working	0.349	0.332	0.370
At that time, father or mother was absent (due to deat	0.008	0.007	0.008
Don't know / Don't remember	0.076	0.096	0.050
Father's Employment Status			
Employed full-time (Company/Government)	0.744	0.769	0.711
Employed full-time (Self-employed)	0.174	0.125	0.236
Employed part-time (Company/Government)	0.004	0.003	0.006
Employed part-time (Self-employed)	0.004	0.003	0.004
Neither employed nor working	0.005	0.005	0.005
At that time, father or mother was absent (due to deat	0.026	0.030	0.021
Don't know / Don't remember	0.043	0.064	0.017
Mother's and Father's Education Attainment (12 dummies for Each)			
Due to space constraints, parent's education attainment will be omitted.			

Note: This table summarizes all variables used for the main estimation of Eq. (4) with the entire sample, and it is followed by separate sections for the young and old cohorts.

Appendix 3. School Uniforms Experiences and IV by Prefecture

Prefecture where a respondent lived at age 6	Proportion of respondents wearing school uniforms in each prefecture	*Apparel* in "neighboring" prefectures (Apparel=Ratio of the added value in the apparel industry to that in the manufacturing industry)	*Apparel* in neighboring prefectures (young cohort)	*Apparel* in neighboring prefectures (old cohort)
Hokkaidō	3.5%	0.007	0.009	0.006
Aomori	10.4%	0.027	0.038	0.015
Iwate	6.2%	0.026	0.035	0.017
Miyagi	6.4%	0.025	0.036	0.015
Akita	4.4%	0.027	0.042	0.013
Yamagata	12.0%	0.032	0.043	0.019
Fukushima	30.0%	0.027	0.036	0.011
Ibaraki	10.2%	0.012	0.008	0.016
Tochigi	7.9%	0.011	0.008	0.015
Gunma	6.4%	0.012	0.009	0.014
Saitama	7.1%	0.004	0.004	0.005
Chiba	6.9%	0.007	0.005	0.010
Tokyo	11.7%	0.007	0.005	0.010
Kanagawa	7.2%	0.008	0.006	0.011
Niigata	10.4%	0.021	0.028	0.013
Toyama	41.5%	0.020	0.029	0.012
Ishikawa	58.7%	0.020	0.027	0.012
Fukui	90.0%	0.023	0.029	0.015
Yamanashi	9.7%	0.011	0.010	0.015
Nagano	3.9%	0.012	0.009	0.016
Gifu	24.1%	0.003	0.003	0.004
Shizuoka	24.1%	0.009	0.008	0.010
Aichi	18.4%	0.009	0.008	0.009
Mie	17.8%	0.008	0.007	0.010
Shiga	28.6%	0.011	0.009	0.015
Kyoto	8.3%	0.011	0.009	0.013
Osaka	42.1%	0.012	0.009	0.014
Hyōgo	19.0%	0.012	0.010	0.016
Nara	60.7%	0.009	0.008	0.012
Wakayama	31.6%	0.011	0.010	0.014
Tottori	15.4%	0.033	0.032	0.034
Shimane	85.2%	0.036	0.036	0.037
Okayama	86.2%	0.030	0.033	0.028
Hiroshima	66.2%	0.037	0.035	0.041
Yamaguchi	80.5%	0.040	0.039	0.042
Tokushima	82.4%	0.034	0.037	0.033
Kagawa	88.5%	0.036	0.041	0.029
Ehime	66.3%	0.032	0.036	0.029
Kōchi	17.4%	0.035	0.035	0.024
Fukuoka	20.8%	0.019	0.026	0.012
Saga	28.3%	0.019	0.025	0.010
Nagasaki	11.5%	0.017	0.024	0.011
Kumamoto	42.0%	0.018	0.024	0.010
Ōita	1.8%	0.020	0.025	0.013
Miyazaki	6.1%	0.017	0.024	0.008
Kagoshima	72.3%	0.018	0.023	0.011
Okinawa	5.1%	0.026	0.027	0.020

Appendix 4. OLS Regression Results

Estimations w/o controls	(1) *binary* Outcome 1: Wearing a Mask in the Non-anonymous Situation, but Removing a Mask in the Anonymous Situation	(2) *continuous* Outcome 2: The Difference in WTP for Wearing a Mask (from Non-anonymous to Anonymous)	(3) *continuous* Outcome 3: The Difference in WTP for Removing a Mask (from Anonymous to Non-anonymous)
Whole Sample	0.0003	7.3783	8.5501
School Uniform Experiences (=1)	(0.013)	(6.104)	(5.773)
Young Cohort - Age<49	0.0055	7.9220	7.9498
School Uniform Experiences (=1)	(0.019)	(7.807)	(6.758)
Old Cohort - Age>=49	-0.0063	6.8081	9.2071
School Uniform Experiences (=1)	(0.020)	(9.614)	(7.862)
Estimations w/t controls	(4) *binary* Outcome 1: Wearing a Mask in the Non-anonymous Situation, but Removing a Mask in the Anonymous Situation	(5) *continuous* Outcome 2: The Difference in WTP for Wearing a Mask (from Non-anonymous to Anonymous)	(6) *continuous* Outcome 3: The Difference in WTP for Removing a Mask (from Anonymous to Non-anonymous)
Whole Sample	0.0016	6.9286	9.9218*
School Uniform Experiences (=1)	(0.014)	(6.209)	(5.757)
Young Cohort - Age<49	0.0048	6.7030	8.4361
School Uniform Experiences (=1)	(0.020)	(8.211)	(6.704)
Old Cohort - Age>=49	-0.0078	5.4358	10.7073
School Uniform Experiences (=1)	(0.020)	(9.411)	(8.537)

Note: The upper panel presents results without controls, whereas the lower panel incorporates results with controls, which encompass individual characteristics and household backgrounds (refer to Appendix 2 for further details). Standard errors are indicated in parentheses. ***, **, and * denote significance levels of $p < .01$, $p < .05$, and $p < .1$, respectively.

Appendix 5. IV Regression Results with Restricted Sample (Public Elementary Schools Only)

Estimations w/o controls	(1) *binary* Outcome 1: Wearing a Mask in the Non-anonymous Situation, but Removing a Mask in the Anonymous Situation	(2) *continuous* Outcome 2: The Difference in WTP for Wearing a Mask (from Non-anonymous to Anonymous)	(3) *continuous* Outcome 3: The Difference in WTP for Removing a Mask (from Anonymous to Non-anonymous)
Whole Sample	0.0744*	25.9707	37.7768
School Uniform Experiences (=1)	(0.043)	(23.534)	(28.553)
Young Cohort - Age<49	0.1694**	62.2551**	64.3382
School Uniform Experiences (=1)	(0.070)	(29.705)	(40.105)
Old Cohort - Age>=49	-0.0347	-2.7909	16.8174
School Uniform Experiences (=1)	(0.056)	(35.102)	(33.689)

Estimations w/t controls	(4) *binary* Outcome 1: Wearing a Mask in the Non-anonymous Situation, but Removing a Mask in the Anonymous Situation	(5) *continuous* Outcome 2: The Difference in WTP for Wearing a Mask (from Non-anonymous to Anonymous)	(6) *continuous* Outcome 3: The Difference in WTP for Removing a Mask (from Anonymous to Non-anonymous)
Whole Sample	0.0895**	26.3370	41.3041
School Uniform Experiences (=1)	(0.045)	(21.520)	(26.720)
Young Cohort - Age<49	0.1926***	59.3631*	66.8399*
School Uniform Experiences (=1)	(0.069)	(31.372)	(37.194)
Old Cohort - Age>=49	-0.0374	-6.1911	14.8409
School Uniform Experiences (=1)	(0.060)	(35.509)	(34.717)

Note: The upper panel presents results without controls, whereas the lower panel incorporates results with controls, which encompass individual characteristics and household backgrounds (refer to Appendix 2 for further details). Standard errors are indicated in parentheses. ***, **, and * denote significance levels of $p < .01$, $p < .05$, and $p < .1$, respectively.

Appendix 6. IV Regression Results with Restricted Sample (Same Public Elementary School for Six Years)

Estimations w/o controls	(1) *binary* Outcome 1: Wearing a Mask in the Non-anonymous Situation, but Removing a Mask in the Anonymous Situation	(2) *continuous* Outcome 2: The Difference in WTP for Wearing a Mask (from Non-anonymous to Anonymous)	(3) *continuous* Outcome 3: The Difference in WTP for Removing a Mask (from Anonymous to Non-anonymous)
Whole Sample	0.1093**	22.3877	32.4560
School Uniform Experiences (=1)	(0.048)	(26.439)	(23.934)
Young Cohort - Age<49	0.2104***	51.4872	65.5113*
School Uniform Experiences (=1)	(0.082)	(33.502)	(35.543)
Old Cohort - Age>=49	-0.0218	-0.7780	-1.7677
School Uniform Experiences (=1)	(0.059)	(32.125)	(28.705)

Estimations w/t controls	(4) *binary* Outcome 1: Wearing a Mask in the Non-anonymous Situation, but Removing a Mask in the Anonymous Situation	(5) *continuous* Outcome 2: The Difference in WTP for Wearing a Mask (from Non-anonymous to Anonymous)	(6) *continuous* Outcome 3: The Difference in WTP for Removing a Mask (from Anonymous to Non-anonymous)
Whole Sample	0.1148**	19.4509	32.2270
School Uniform Experiences (=1)	(0.053)	(24.390)	(23.558)
Young Cohort - Age<49	0.2211***	40.4873	68.7918**
School Uniform Experiences (=1)	(0.082)	(37.369)	(33.873)
Old Cohort - Age>=49	-0.0237	-5.2257	-2.6363
School Uniform Experiences (=1)	(0.067)	(31.221)	(32.271)

Note: The upper panel presents results without controls, whereas the lower panel incorporates results with controls, which encompass individual characteristics and household backgrounds (refer to Appendix 2 for further details). Standard errors are indicated in parentheses. ***, **, and * denote significance levels of $p < .01$, $p < .05$, and $p < .1$, respectively.

Appendix 7. IV Regression Results with Restricted Sample

Estimations w/o controls	(1) *binary* Outcome 1: Wearing a Mask in the Non-anonymous Situation, but Removing a Mask in the Anonymous Situation	(2) *continuous* Outcome 2: The Difference in WTP for Wearing a Mask (from Non-anonymous to Anonymous)	(3) *continuous* Outcome 3: The Difference in WTP for Removing a Mask (from Anonymous to Non-anonymous)
Whole Sample	0.0801*	25.1282	49.4270*
School Uniform Experiences (=1)	(0.046)	(23.552)	(27.230)
Young Cohort - Age<49	0.1853**	70.6303**	87.8690**
School Uniform Experiences (=1)	(0.080)	(31.793)	(43.979)
Old Cohort - Age>=49	-0.0433	-13.3239	12.9774
School Uniform Experiences (=1)	-0.05	-35.323	(33.193)

Estimations w/t controls	(4) *binary* Outcome 1: Wearing a Mask in the Non-anonymous Situation, but Removing a Mask in the Anonymous Situation	(5) *continuous* Outcome 2: The Difference in WTP for Wearing a Mask (from Non-anonymous to Anonymous)	(6) *continuous* Outcome 3: The Difference in WTP for Removing a Mask (from Anonymous to Non-anonymous)
Whole Sample	0.0904*	26.0133	50.1678*
School Uniform Experiences (=1)	-0.049	-21.223	-26.362
Young Cohort - Age<49	0.1988**	70.8550**	85.6085**
School Uniform Experiences (=1)	(0.079)	(31.999)	(39.106)
Old Cohort - Age>=49	-0.049	-21.5961	12.9774
School Uniform Experiences (=1)	-0.056	-35.682	-33.193

Note: Approximately 2% of respondents preferred wearing masks only in anonymous situations, which could be due to measurement error or unpredicted behavior. We conducted robustness checks by re-estimating the regressions without these samples.The upper panel presents results without controls, whereas the lower panel incorporates results with controls, which encompass individual characteristics and household backgrounds (refer to Appendix 2 for further details). Standard errors are indicated in parentheses. ***, **, and * denote significance levels of $p < .01$, $p < .05$, and $p < .1$, respectively.