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HELLO BEAUTIFUL?
THE EFFECT OF INTERVIEWER PHYSICAL ATTRACTIVENESS ON INTERVIEW SUCCESS

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The Effect of Interviewer Physical Attractiveness on Interview Success

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Abstract:
This paper analyzes the effect of interviewers' physical attractiveness on cooperation rates in face-to-face interviews and, given cooperation, respondents' assessment of the pleasantness of the interview. Including four aspects of physical attractiveness (facial attractiveness, voice attractiveness, Body Mass Index, and height), the paper reports the following findings: (1) interviewers with more attractive faces and lower Body Mass Index have higher cooperation rates; (2) given cooperation, there is no effect of physical attractiveness on respondents' assessment of the pleasantness of the interview; (3) differences in interviewers' personality account for about one-third of the total effect of facial attractiveness on cooperation rates; and (4) important reasons why interviewers with more attractive faces have higher cooperation rates is that they have higher self-esteem and are more open (for example imaginative, excitable, and curious).

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Introduction

What makes some interviewers more successful than others? Survey methodologists have long studied the impact of interviewers' personal characteristics on survey responses. Results from this research suggest that characteristics such as sex (e.g., Catania, Binson, Conchola, Pollack, and Hauck 1996; Dykema, Diloreto, Price, White, and Schaeffer 2012; Flores-Macias and Lawson 2008), race (e.g., Anderson, Silver, and Abrahamson 1988; Hatchett and Schuman 1975; Hill 2002), and experience (e.g., Cleary, Mechanic, and Weiss 1981; O'Muircheartaigh and Campianelli 1998) affect cooperation rates and survey responses.

In addition to socio-demographic characteristics, recent studies also suggest that interviewers' physical appearance may affect survey responses. Most studies have focused on the effect of interviewers' Body Mass Index (BMI) on survey responses to health related questions, for example questions on eating and weight control. Some studies find that interviewer BMI affects survey responses (Eisinga, te Grotenhuis, Larsen, and Pelzer 2012; Eisinga, te Grotenhuis, Larsen, Pelzer, and van Strien 2011), while others find little or no effect (Kroh 2005; McKenzie, Johnson, Harvey-Berino, and Gold 2002). Apart from these studies, surprisingly little is known about the effects of interviewers' physical appearance on survey responses and what might explain these effects.

This paper analyzes the effect of interviewers' physical attractiveness on two measures of interview success: cooperation rates in face-to-face interviews and, given cooperation, the respondent's assessment of the pleasantness of the interview. Theories in evolutionary and social psychology argue that physically attractive interviewers should be more successful than less attractive ones because respondents unconsciously ascribe positive qualities, for example social competence, friendliness, and likeability, onto attractive interviewers (Langlois, Kalakanis, Rubenstein, Larson, Hallam, and Smoot 2000). Physically attractive interviewers may also develop

personality traits, for example high self-esteem or extroversion, which make them better able to convince skeptical respondents to participate in surveys and which furthermore enable them to present a positive impression during the interview session. Consequently, theory suggests that physical attractiveness should have a positive effect on cooperation rates and interview satisfaction.

This paper makes five contributions to existing research. First, most previous studies use the interviewer's BMI as the only measure of physical attractiveness (e.g., Eisinga et al. 2011; McKenzie, Johnson, Harvey-Berino, and Gold 2002). This paper includes four aspects of physical attractiveness: facial attractiveness, voice attractiveness, BMI, and height. All four aspects of physical attractiveness have previously been shown to affect social and socioeconomic outcomes (Eagly, Ashmore, Makhijani, and Longo 1991; Langlois et al. 2000), and it is likely that they also affect interviewer success. Interviewers' facial and voice attractiveness was rated by a panel of ten raters on the basis of photographs and voice recordings, while information on interviewers' BMI and height was collected through self-reports.

Second, most previous research analyzes the effect of interviewers' physical attractiveness on responses to specific questions (e.g., Eisinga et al. 2011; McKenzie, Johnson, Harvey-Berino, and Gold 2002). This design does not take into account that physical attractiveness may affect the likelihood of obtaining an interview in the first place. To address this question, the paper proposes a two-stage model which jointly analyzes the effect of physical attractiveness on the likelihood that the respondent agrees to give an interview and, given that the interviewer "gets through the door," the respondent's assessment of the pleasantness of the interview. This design makes it possible to analyze the effect of physical attractiveness on two important aspects of interviewer success.

Third, in addition to analyzing if physical attractiveness affects interviewer success the paper also seeks to explain what makes attractive interviewers more successful. Specifically, the

paper analyzes if, as hypothesized in social psychology, differences between interviewers in their personality (measured by the Rosenberg self-esteem scale and the Big Five inventory) explain why more attractive interviewers are more successful. Previous studies have analyzed the effect of interviewers' personality and attitudes on cooperation rates (Blom, De Leeuw, and Hox 2011; Durrant, Groves, Staetsky, and Steele 2010; Jäckle, Lynn, Sinibaldi, and Tipping 2011), but they have not addressed whether differences in personality traits explain why physically attractive interviewers are more successful.

Fourth, the design of the survey used in this paper, the Danish Longitudinal Survey of Youth (DLSY-C), makes it particularly suited for analyzing the effect of interviewer physical attractiveness on survey responses. The DLSY-C used face-to-face interviews and implemented a strict protocol describing how interviewers were allowed to approach respondents. This protocol stipulated that interviewers had to make first contact by physically going to respondents' homes (first contact by telephone or email was not allowed). Moreover, interviewers had to go to the respondent's physical address at least four times (also on evenings or weekends) before the respondent could be written off as a non-response. Consequently, the design of the DLSY-C means that all interviewers were forced to make a physical first impression.

Finally, the total population in the DLSY-C was known beforehand, as were also specific reasons for non-eligibility and non-response. The DLSY-C sampled all children of participants in an ongoing cohort study, the Danish Longitudinal Survey of Youth (DLSY). Parents and children were linked through the large-scale administrative registers that exist in Denmark. These registers, which are used for administrative purposes as well as for research, provide very reliable information on the DLSY-C population, and they were used to determine if respondents were eligible for interview (for example, respondents may be ineligible due to having emigrated or died). Furthermore, the survey agency that collected the DLSY-C data provided detailed records of

reasons for non-response and non-eligibility for the entire DLSY-C population. Consequently, in addition to information on the respondents who were successfully interviewed, the present paper also includes information on the respondents who were not interviewed.

Results from the empirical analysis suggest that physically attractive interviewers, and specifically those with attractive faces, have higher cooperation rates than less attractive ones. Holding other factors constant, an increase in facial attractiveness of one unit on a 1-10 scale increases the probability of cooperation by around 1.6 percentage points. However, once "though the door," interviewers' physical attractiveness has no additional effect on the extent to which the respondent perceives the interview experience as pleasant. Results also suggest that differences in interviewers' personality traits account for about one-third of the total effect of facial attractiveness on the likelihood of cooperation and, specifically, that higher self-esteem and openness are the important reasons why more attractive interviewers are also more successful.

Why Does Physical Attractiveness Matter?

Physical attractiveness has been linked to positive social and socioeconomic outcomes across scientific disciplines. This paper draws on evolutionary and social psychology to develop a conceptual framework for analyzing why interviewers' physical attractiveness might be linked to cooperation rates and to respondents' perceptions of the pleasantness of the interview. The first section presents the evolutionary psychology approach because this approach proposes a set of basic evolutionary principles which motivate why a physical attractiveness advantage might exist in the first place. The second section presents the social psychology approach, which provides a supplementary explanation of the psychological and social mechanisms through which this attractiveness advantage operates (e.g., Langlois et al. 2000).

Evolutionary Psychology

Evolutionary psychologists argue that the development of the human brain was principally driven by the recurrent challenges early humans faced in ancestral environments (e.g., Buss 2008; Tooby and Cosmides 2005). In these environments certain physical traits, for example strength and reproductive quality, were instrumental for survival and, as a consequence, humans developed information-processing circuits in the brain which instinctively recognized manifestations of these traits as attractive (e.g., Thornhill and Gangestad 1994). As a consequence, traits which are regarded as physically attractive are traits which signal (re)productive skills. Evolutionary psychologists argue that this innate appraisal of physical attractiveness still exists today and helps to explain psychological and social diversity in human populations.

There is empirical evidence to support the basic assumptions in evolutionary psychology. Research shows that there is little variation in people's ratings of others' physical attractiveness (e.g., Berscheid and Walster 1974; Feingold 1992a). Thus, most people agree on who is attractive and who is not, and most also agree that those with symmetric and averagely proportioned faces and bodies are attractive (Etcoff 1999). Research furthermore shows that there is only little cross-cultural variation in people's perceptions of which facial characteristics are considered attractive (e.g., Langlois et al. 2000; Perrett, May, and Yoshikawa 1994). Moreover, research shows that that, already as infants, individuals prefer physically attractive people to unattractive ones (e.g., Etcoff 1999; Langlois, Ritter, Roggman, and Vaughn 1991). Finally, research in neuroscience shows that the evaluation of physical attractiveness is instinctive and precedes any conscious deliberation (e.g., Senior 2003). Consequently, there is evidence that the preference for physical attractiveness is an innate trait which does not vary across individuals and cultures and which operates independently of conscious reflection. As explained below, these mechanisms may have implications for respondents' initial perceptions of interviewers.

Social Psychology

Evolutionary psychology provides an explanation of why certain traits in humans are considered attractive, while others are considered unattractive. But how does physical attractiveness impact real-life social interactions, for example when interviewers approach respondents in face-to-face interviews? An influential explanation in social psychology is the "what is beautiful is good" stereotype (Berscheid and Walster 1974; Dion, Berscheid, and Walster 1972; Feingold 1992b; Langlois et al. 2000). According to this stereotype, and possibly due to the mechanisms highlighted by evolutionary psychologists, individuals make inferences about others' traits and qualities based on their physical appearance. Physically attractive people are unconsciously ascribed a range of positive traits such as intelligence, social competence, friendliness, likeability and leadership skills (Feingold 1992b; Langlois et al. 2000). By contrast, physically unattractive individuals are ascribed negative traits. There is rich empirical evidence to support the existence of the "what is beautiful is good" stereotype (Eagly, Ashmore, Makhijani, and Longo 1991; Feingold 1992b; Langlois et al. 2000; Mobius and Rosenblat 2006).

Physical Attractiveness and Personality

The "what is beautiful is good" stereotype suggests that physically attractive interviewers have a comparative advantage over less attractive ones because they provide a better first impression. However, in addition to providing a better first impression, physically attractive interviewers may also have a comparative advantage during the interview session.

Social psychologists argue that physically attractive individuals gradually internalize outsiders' judgments and acquire self-views and behaviors which are consistent with the "what is beautiful is good" stereotype (Darley and Fazio 1980; Eagly, Ashmore, Makhijani, and Longo 1991). For example, physically attractive individuals may develop better confidence or may become more extroverted and sociable than less attractive ones. This argument suggests that the effect of physical attractiveness on interviewer success may not be limited to initial cooperation, but also to the way in which respondents experience the interview. In particular, more attractive interviewers are confident, extraverted, and likeable, which in turn may lead respondents to perceiving the interview session as a pleasant experience. Research demonstrates a positive correlation between physical attractiveness and voice attractiveness (Feinberg, DeBruine, Jones, and Little 2008; Hughes, Harrison, and Gallup Jr. 2002) and, furthermore, that individuals with attractive voices are judged to have desirable personality traits and to be warmer and more likeable than those with less attractive voices (e.g., Berry 1990; Zuckerman, Hidgins, and Miyake 1990). Consequently, if respondents infer about interviewers' personality and "likeability" based on their appearance and voice, then interviewers who are more attractive have a comparative advantage with regard to creating a pleasant interview experience.

Hypotheses

Building on evolutionary and social psychology, the first hypothesis to be tested in the empirical analysis is that interviewers' physical attractiveness has a positive effect on cooperation rates. This effect arises from respondents ascribing positive or negative qualities onto the interviewer based on their physical appearance (for example that they are friendly, likeable, or socially competent). As

explained in the introduction, the design of the DLSY-C makes it particularly well-suited for testing this hypothesis because all interviewers had to make a physical first impression.

Given that the interviewer "gets through the door," the second hypothesis to be tested is that physical attractiveness also affects the respondent's assessment of the pleasantness of the interview. This effect may arise for two reasons. First, in the interaction during the interview the "what is beautiful is good" stereotype may lead respondents to perceive physically attractive interviewers as more likeable and friendly than less attractive ones. Second, physically attractive interviewers may behave in different ways than less attractive ones during the interview due to differences in personality traits that are correlated with their physical attractiveness. Consequently, physically attractive interviewers may have a double advantage: they are perceived in a positive light and they act in ways that reinforce that impression. In order to distinguish these two effects, the present paper includes a range of variables capturing interviewers' personality traits (self-esteem and the Big Five personality inventory) and analyzes the extent to which these traits mediate the effect of physical attractiveness on interviewer success.

Data

This paper combines data from three sources: The DSLY-C data (respondents), an interviewer questionnaire, and assessments of interviewers' physical attractiveness carried out by a panel of raters.

DLSY-C

The principal data source is the Danish Longitudinal Survey of Youth – Children (DLSY-C). The DLSY-C includes all children born to participants in a long-running cohort study, the Danish Longitudinal Survey of Youth (DLSY). The DLSY includes a nationally representative sample of

3,151 Danes who were all born in or around 1954 and who have been interviewed regularly since 1968. The DLSY is similar to other cohort studies such as the National Longitudinal Surveys of Youth in the United States and the National Child Development Study in the United Kingdom.

The DLSY-C samples all children born to the 3,151 respondents who originally participated in the DLSY. Respondents were linked to parents on the basis of administrative registers run by Statistics Denmark, the national data authority. Denmark has operated a central person register (CPR) since 1968 in which all inhabitants are assigned a unique CPR number upon birth or migration. This CPR number is used almost universally in transactions with (and between) public authorities (for example, tax, social security, or health authorities). The CPR number can also be used by researchers to link family members, for example parents and children, siblings, and spouses. A search in the CPR registers in January 2010 showed that the DLSY participants had a total of 5,468 children, which amounts to 1.74 children per respondent.[1]

Table 1 summarizes interview status for the total population of 5,468 respondents in the DLSY-C, as reported by the survey agency that carried out the data collection. The table shows that 3,515 respondents were successfully interviewed (three partial interviews were also carried out), while 508 or 9.3 percent of the respondents refused to participate when approached by an interviewer. The remaining 1,442 respondents in the DLSY-C population were not interviewed because these respondents were not eligible for an interview, for example due to emigration, death, having moved to an unknown location, or being too young (the DLSY-C did not include respondents younger than 14 years of age), cf. code 4-16 in Table 1.

[1] In theory, an individual may have a child that is not registered in the CPR register. However, in practice this is very unlikely since all interactions with public (and to a large extent also private) authorities regarding children, for example general practitioner, daycare, family benefits, and schools require a CPR number.

– TABLE 1 HERE –

Respondents coded "research protection" in Table 1 (code 11) were eligible for an interview but could not be contacted directly for legal reasons. In the period 2000-2006 it was possible in Denmark to be "protected" from being contacted by researchers. Research protection means that a person is flagged in the CPR register as not being available for research and, consequently, this person must not be contacted with the objective of being included in surveys.[2] A person would get covered by research protection by "ticking off" a box on the official form which everyone must fill out and submit to the CPR register when registering a change of residence. Once registered, a person remains protected from research until he or she actively takes action to change this status. Research shows that those who were most likely to get protection from research were young people who move a lot and, as a consequence, who often fill out the form required to register a change of residence (DST 2008).

Rather than completely writing off DLSY-C respondents registered as protected from research, the DLSY-C staff contacted the parent of the DLSY-C respondent, i.e., the original DLSY participant, and enquired whether this parent would ask the DLSY-C respondent for permission to contact him or her. If permission was granted, the research protected respondent was included in the DLSY-C sample and was contacted by an interviewer. In the DLSY-C 1,127 respondents, or about one-fifth of the total population, were registered as protected from research (this figure is identical to national figures for similarly aged cohorts, see DST 2008). The 727 respondents listed in Table 1 who are listed as protected from research are those for whom permission to make contact was not obtained or where parents did not respond to the DLSY-C team's request. The relevant sample in

[2] Research protection does not exempt an individual from being included in research which relies exclusively on data from administrative registers. Thus, research protection only protects against being included in surveys.

the DLSY-C to be analyzed in this paper is the sample that was contacted by an interviewer and that either completed an interview (code 1 and 2 in Table 1) or that refused to give an interview (code 3). We furthermore restrict the sample to DLSY-C respondents age 18 or older, which leaves a sample of 3,809 respondents.

Interviewer Data

The survey agency which collected the data for the DLSY-C used a team of 93 interviewers. The interviewers are typically semi-professional and most have additional means of income. Table 2 shows descriptive statistics for the interviewer data. Information on interviewers was obtained from two sources: a questionnaire administered during a series of interview training sessions and a set of physical attractiveness ratings carried out by a panel of raters on the basis of a photograph taken of each interviewer and a recording of each interviewer's voice.

– TABLE 2 HERE –

Variables

Dependent Variables

The paper includes two dependent variables: (1) a dummy variable taking the value 1 if the DLSY-C respondent was successfully interviewed (code 1 and 2 in Table 1) and 0 otherwise (code 3) and, for the sample that was interviewed, (2) the respondent's assessment of the pleasantness of the interview. The question on the pleasantness of the interview used the following wording: "On a scale from 1-5, where 1 means very unpleasant and 5 means very pleasant, how would you rate this interview?" Respondents answering "don't know" (six respondents or 0.2 percent of the sample) were treated as missing values. Before stating his or her response, the respondent was handed the

laptop used by the interviewer and was allowed to state his or her opinion without the interviewer knowing the reply.

Physical Attractiveness

The paper includes four aspects of interviewers' physical attractiveness: facial attractiveness, voice attractiveness, BMI, and height.

Facial attractiveness: A panel of ten raters (aged 20-65 and consisting of both men and women) evaluated each interviewer's facial attractiveness on the basis of a photograph taken during an interviewer training session.[3] As in previous research (e.g., Biddle and Hamermesh 1998; Langlois et al. 2000; Mobius and Rosenblat 2006), raters used a scale from 1 to 10 to evaluate facial attractiveness, with 1 signifying very unattractive and 10 very attractive. The variable used in the empirical analysis summarizes the mean rating of facial attractiveness across all ten raters. Inter-rater reliability for this variable is 0.88 (as measured by Cronbach's Alpha).

Voice attractiveness: The panel that evaluated facial attractiveness also evaluated the attractiveness of interviewers' voices based on a recording of each interviewer reading out a passage from Hans Christian Andersen's fairytale *the Tinderbox*.[4] Raters were asked to judge the interviewers' personality and physical appearance solely on the basis of their voice. Specifically, the raters were asked to express the extent to which they thought the interviewer was: pleasant, competent, physically attractive, trustworthy, extroverted, and confident (e.g., Oksenberg and Cannell 1988; van der Vaart, Ongena, Hoogendoorn, and Dijkstra 2005; Zuckerman and Miyake 1993). For each dimension, the rater used a 1-7 scale, with higher values indicating a higher rating

[3] Each interviewer was photographed against a neutral white background. The photos were cropped to show the interviewer's face only.

[4] The voice recording lasted about thirty seconds and was carried out in a separate room to eliminate ambient noise. The interviewers were instructed to read out the text in a neutral voice.

of that dimension. As with facial attractiveness, the variables used in the empirical analysis were calculated as the mean rating for each dimension across the ten raters. These six variables were then included in a factor analysis to estimate overall voice attractiveness, and a single latent factor accounts for 90 percent of the covariance between the six items (factor loadings for the six items lie in the range 0.70-0.88 range; see Table A1).[5] This variable was used in the empirical analysis to capture voice attractiveness. Note that photographs and voice recordings were presented to the rating panel in a random order (and in separate sessions), which means that raters were unable to link a photograph to a voice and vice versa. Table A2 shows that the correlation between the attractiveness rating of the interviewer's face and voice is 0.43 ($p < 0.001$) and thus quite high.

Body Mass Index (BMI) was calculated on the basis of self-reported height and weight.

Height (in centimeters) was reported by the interviewers in the interviewer questionnaire. The height variable used in the analysis was standardized within genders.

Personality

The analysis includes six variables to capture interviewers' personality: Self-esteem and the five dimensions of the Big Five inventory. The measure of self-esteem is Rosenberg's self-esteem scale, which is based on a battery of ten questions and where higher scores indicate higher self-esteem (Rosenberg 1965). The Big Five inventory is a widely used instrument which captures the following five aspects of personality (descriptive adjectives in parenthesis): Extraversion (talkative, assertive, energetic), Agreeableness (good-natured, cooperative, trustful), Conscientiousness (orderly, responsible, dependable), Neuroticism (anxious, hostile, easily upset), and Openness (imaginative,

[5] Inter-rater reliabilities for the six voice attractiveness ratings are in the range 0.72-0.82. Further details are available upon request.

excitable, curious) (John and Srivastava 1999). The interviewer questionnaire includes a ten-item short version of the Big Five inventory proposed by Rammstedt and John (2007), which has been shown to have high reliability. Table A2 summarizes correlations between the different measures of physical attractiveness and personality.

Control Variables

In addition to measures of physical attractiveness and personality, the analysis includes a range of interviewer characteristics previously linked to cooperation rates and response behavior. These characteristics include the interviewer's sex (dummy variable for women), age (in years), experience (in years), and highest level of education. Education was coded using a 1-6 scale with the following categories: 1 = Elementary school, 2 = Upper secondary education (high school), 3 = Vocational education, 4 = Lower tertiary education (vocationally oriented higher education), 5 = Intermediate tertiary education (university college), and 6 = Higher tertiary education (university). Since all interviewers were white it was not possible to include race as an explanatory variable. The analysis also includes the respondent's sex (dummy variable for women) and age in years. Table 2 provides descriptive statistics.

In addition to these control variables, the analysis also includes two variables which are used to improve identification of the two-stage statistical model presented below. These variables are two dummy variables indicating whether the interviewer approached the respondent for an interview on a Saturday or a Sunday (as opposed to a weekday). The motivation for including these variables is described below.

Analytical Setup

This paper jointly analyzes the effect of interviewer physical attractiveness on the likelihood of obtaining an interview, and given that the interviewer gets an interview, the respondent's assessment of the pleasantness of the interview.

The paper employs a Heckman sample selection model (Heckman 1979; Puhani 2000). This model includes a two-stage model which estimates two equations jointly: a selection model and an outcome equation. The selection model is a binary probit model which is used to estimate the probability that the interviewer "gets though the door" and obtains an interview (i.e., a model for the probability of observing a code 1 or 2 versus a code 3 in Table 1). The outcome model is a linear regression model of the respondent's assessment of the pleasantness of the interview (1-5 scale). The outcome model is estimated only for respondents who were actually interviewed.

The outcome model is a linear regression model of the form

$$y_{1ik} = x_k \beta + b_{ik} \alpha + u_{ik},$$

where y_{1ik} is the assessment of the pleasantness of the interview by respondent *i* (*i*=1,…,*N*) interviewed by interviewer *k* (*k*=1,…,93). The vector *x* captures interviewer characteristics (physical attractiveness and control variables and, in some analyses, personality variables), the vector *b* captures respondents' sex and age, and *u* is an error term assumed to follow a normal distribution. β and α are vectors of regression coefficients to be estimated.

The dependent variable y_1 is observed only for DLSY-C respondents who were actually interviewed. As shown in Table 1, this subsample makes up 87 percent of all potential DLSY-C respondents approached for an interview. The model is extended to take into account that the likelihood of being interviewed may depend on interviewers' physical attractiveness. Let y_2^*

denote a latent variable which captures the propensity for the respondent to be interviewed. This propensity can be written

$$y_{2i}^{*} = w_k\gamma + e_{ik},$$

where *w* is a vector of interviewer characteristics (the same variables as in *x*) and where γ captures the effect of these characteristics on the propensity that the respondent is interviewed. A key hypothesis to be tested in this paper is that respondents are more likely to agree to being interviewed if the interviewer is more physically attractive. The error term *e* is assumed to follow a normal distribution. The latent propensity y_2^* is not observed in the data, only the observed binary variable y_2 which takes the value 1 if the respondent is actually interviewed (code 1 or 2 in Table 1) and 0 otherwise (code 3). Assuming that y_2 takes the value 1 if y_2^* crosses a specific latent threshold, a binary probit model for the probability that $y_2 = 1$ can be written

$$\Pr(y_{2ik} = 1) = \Phi(w_k\gamma + d_{ik}\lambda).$$

Unlike the model for the latent propensity y_2^*, the probit model also includes *d* which captures the dummy variables indicating whether respondents were approached for an interview on a Saturday or a Sunday (as opposed to on a weekday). These variables are included as exclusion restrictions in the selection model and are assumed to affect the probability that the respondent is interviewed but, conditional on being interviewed, they are assumed not to have any direct effect on the response in the outcome equation. Exclusion restrictions are required to ensure that the two-stage model is not identified exclusively from functional form assumptions. The substantive argument for including

these variables is that respondents who were approached by an interviewer on either a Saturday or a Sunday are arguably less willing to be interviewed compared to those who were approached on a weekday. Furthermore, conditional for agreeing an interview, the assumption in the present analysis is that there is not direct effect of being interviewed on a Saturday or Sunday on the perceived pleasantness of the interview.[6] Finally, the two error terms *u* and *e* follow a bivariate normal distribution and the correlation coefficient ρ expresses the correlation between the two error terms.

Results

The presentation of the empirical results is divided into three sections. The first section presents results on the effect of interviewers' physical attractiveness on their cooperation rates; i.e., the likelihood that respondents agree to give an interview. The second section presents results on the effect of physical attractiveness on respondents' assessments of the pleasantness of the interview, given that respondents agree to be interviewed. Finally, the third section presents results on the extent to which the effect of physical attractiveness on the likelihood of cooperation and the respondent's assessment of the pleasantness of the interview is mediated by interviewers' personality traits.

Table 3 shows results from joint models of the probability that the respondent agrees to give an interview (selection model) and, given an interview, the respondent's assessment of the pleasantness of the interview (outcome model). The upper part of Table 3 summarizes results for the effects of the four aspects of physical attractiveness on the respondent's assessment of the pleasantness of the interview, while the lower part of the table summarizes results for the effects of physical attractiveness on the likelihood that the respondent agrees to give an interview. The models

[6] The bivariate correlation between being interviewed either on a Saturday or on a Sunday and the respondent's assessment of the pleasantness of the interview is close to zero and not statistically significant.

include the indicators of interviewers' physical attractiveness individually due to the low number of effective observations for each variable (N is between 85 and 89) and in order to assess their individual effect on the outcomes of interest. Furthermore, the models in Table 3 do not include the variables capturing personality traits. These variables are included in supplementary analyses presented below.

– TABLE 3 HERE –

Beginning with the selection models, Table 3 shows that, net of other characteristics, interviewers' facial attractiveness ($p < 0.05$) and their BMI ($p = 0.053$) has statistically significant effects on the likelihood that they obtain an interview. For facial attractiveness, the marginal effect of increasing facial attractiveness by one point on the 1-10 scale (and holding other variables at their means) is a 1.6 percentage point increase in the likelihood of obtaining an interview. Thus, interviewers with more attractive faces are more successful in recruiting respondents compared to their less attractive colleagues. Similarly, interviewers with higher BMI have a lower likelihood of obtaining an interview. The marginal effect of an increase in BMI of one is a 0.4 percentage point decrease in the likelihood of obtaining an interview. This effect, although not large in quantitative terms, is consistent with the "what is beautiful is good" stereotype suggesting that physically attractive (in this case lighter) individuals are ascribed positive qualities, for example that they are friendly and likeable, which in turn leads to a higher cooperation rate. Table 3 also shows that there are no effects of voice attractiveness and height on interview success. Consequently, over and

beyond facial attractiveness and BMI, there is no evidence that interviewers with attractive voices have higher cooperation rates than those with less attractive voices.[7]

The upper half of Table 3 summarizes results from (outcome) regressions of the respondent's assessment of the pleasantness of the interview. Surprisingly, the estimated coefficients on all four measures of physical attractiveness are close to zero and not significant. These results suggest that, after taking into account that physical attractiveness increases the likelihood that the interviewer "gets through the door," physical attractiveness has no additional effect on the respondent's assessment of the pleasantness of the interview. A reason why this is the case might be that, after their initial, positive response to a physically attractive interviewer – but before stating their opinion on the pleasantness of the interview at the end of the (approximately 45-minute) interview – respondents have gotten to know the interviewer and is less likely to be influenced by her attractiveness. Consequently, it may be that the benefits of the "what is beautiful is good" stereotype apply only to first impressions and do not persist over time.

The final part of the analysis consists in analyzing the extent to which differences between interviewers' personality might account for the effect of physical attractiveness on interview success. Since facial attractiveness and BMI were the only indicators of physical attractiveness that had a significant effect on cooperation rates (and none of the indicators had any effect on the respondent's assessment of the pleasantness of the interview), the final analysis is restricted to these two indicators and to the likelihood that the respondent agrees to be interviewed.[8]

[7] Table 3 also shows that being approached for an interview on a Saturday or a Sunday (as opposed to on a weekday) has a highly significant negative effect on the likelihood of being interviewed. Consequently, the exclusion restrictions in the selection model act in accordance with expectations.

[8] Supplementary analyses show that none of the personality variables have any effect on the respondent's assessment of the pleasantness of the interview.

Table 4 shows results from decomposition analyses of the effect of respectively facial attractiveness and BMI on cooperation rates. The estimated models are binary probit models (the same model specification as the selection model above) predicting the probability that the respondent agrees to give an interview. There are two model specifications for each measure of physical attractiveness. The first model specification includes the same variables as the ones in Table 3 (each measure of physical attractiveness and the control variables). The second model specification adds the six personality variables (self-esteem and the Big Five inventory). The idea is to test how much of the effect of physical attractiveness is mediated by interviewers' personality traits.

– TABLE 4 HERE –

The first column shows the effect of facial attractiveness on the likelihood that the respondent agrees to be interviewed in the baseline model specification. The marginal effect of increasing facial attractiveness by one unit on a 1-10 scale (1.6 percentage points) is the same as in Table 3. The second column adds the six personality variables. The table shows that self-esteem and openness both have statistically significant effects on the likelihood that the respondent agrees to give an interview, but that none of the other personality variables are significant. Substantively, results suggest that interviewers with higher self-esteem and those who are more open (i.e., curious, excitable, and imaginable) have a higher likelihood of obtaining an interview compared to interviewers with lower self-esteem and those who are less open. The table also shows that the marginal effect of facial attractiveness on the likelihood of participating decreases from 1.6 to 1.1 percentage points after including the personality variables; i.e., differences between interviewers in

personality traits account for some of the positive effect of facial attractiveness on cooperation rates.

The third column in Table 4 shows results from a decomposition analysis intended to explain how much of the effect of interviewer facial attractiveness on cooperation rates is mediated by the personality variables.[9] The analysis shows that the personality variables account for about one-third (33.2 percent) of the total effect of facial attractiveness on cooperation rates. In comparison, the other interviewer characteristics (sex, age, experience, and education) account for just over seven percent. Moreover, the analysis shows that, when analyzing the part of the effect of facial attractiveness that is explained by personality, the two most important components are self-esteem and openness. Consequently, two of the reasons why interviewers with more attractive faces have a higher cooperation rate than interviewers with less attractive faces are that they are more confident and open. These results are in line with results from social psychology suggesting that physically attractive individuals internalize outsiders' positive perceptions and develop personality traits that are consistent with these perceptions.

Results from the decomposition analysis of the effect of BMI on cooperation rates are less clear. Table 4 shows that the personality variables account for only 4.3 percent of the total effect of interviewer BMI on cooperation rates. Furthermore, the results for the relative importance

[9] Decomposition analysis is more difficult in nonlinear models (such as the probit model used in this setup) than in linear models. The reason why is that changes in the probit coefficients (and marginal effects) on the physical attractiveness variables when including the personality variables might arise both two different sources: (1) correlations between physical attractiveness and personality and (2) reductions in the error variance in the probit model when including the personality variables (probit coefficients are only identified up to scale). This paper used the normalization procedure proposed by Karlson, Holm, and Breen (2012) and implemented in the Stata ado `khb` to normalize the probit coefficients before the decomposition analysis. The interpretation of the results from this procedure is similar to those from a linear decomposition analysis.

of the different components of personality show no clear patterns, probably because these components explain only little of the total effect of BMI on cooperation rates and because the effect of BMI is smaller overall than the effect of facial attractiveness.

Conclusion

The objective of this paper was to analyze the effect of interviewers' physical attractiveness on two measures of interviewer success: cooperation rates and, given that the interviewer "gets through the door," the respondent's assessment of the quality of the interview. The paper contributes to existing research by (1) including four aspects of interviewer physical attractiveness, (2) modeling two interlinked aspects of interviewer success (cooperation rates and the perceived pleasantness of the interview), (3) analyzing which personality traits make physically attractive interviewers more successful, and (4) using survey data in which interviewers had to make a physical first impression and which provide detailed information on the entire population to be interviewed.

The main conclusion from the analysis is that physically attractive interviewers, and specifically those with attractive faces, are more likely to obtain an interview than less attractive interviewers but, given that they obtain an interview, they are not more likely to leave a positive impression with respondents. This finding is in line with theories in evolutionary and social psychology arguing that physical attractiveness leads to a positive first impression. Furthermore, the analysis shows that observed personality traits account for about one-third of the total effect of facial attractiveness on cooperation rates and, moreover, some of the reason why interviewers with more attractive faces are more successful is that they have higher self-esteem and are more open.

The results from the present analysis feed into ongoing discussions about interviewer effects and the quality of survey research. Cooperation rates are declining in most countries (e.g., Bradburn 1992; de Leeuw and de Heer 2002), and it is important to identify interviewer

characteristics that are associated with a higher likelihood of cooperation. Results from this paper suggest that physical attractiveness, a scarcely explored interviewer characteristic, contributes to interviewer success. Furthermore, in addition to respondents unconsciously viewing physically attractive interviewers in a positive light, the paper shows that one of the mechanisms through which physical attractiveness leads to interviewer success is that physically attractive interviewers have personality traits which make them more successful at the doorstep. Still, about two-thirds of the effect of physical attractiveness remains unexplained and should be addressed in future research.

Two aspects of the empirical analysis deserve final attention. First, the DLSY-C includes a comparatively small number of interviewers (less than 100). This design limits variation at the level of interviewers and statistical power. Second, the estimated effect of physical attractiveness on interviewer success may be considered a lower bound for two reasons. The first reason is that the interviewers are older than the general population and, as a consequence, there is less variation in physical attractiveness (and other interviewer characteristics) than in the general population. However, it is often the case in face-to-face survey research that interviewers are of mature age. The second reason is that there is an age mismatch in the DLSY-C in the sense that interviewers (mean age 62.8) are on average much older than the respondents whom they interview (mean age 27.8). Arguably, the effect of interviewers' physical attractiveness on cooperation rates might have been higher if interviewers and respondents were of similar age.

Table 1. Interview Status of the DLSY-C Population

	Interview	Percent	*N*	R approached for interview?
1	Completed interview	64.4	3,515	Y
2	Partial interview	0.1	3	Y
	No interview. Reason:			
3	Refused	9.3	508	Y
4	Ill	0.3	17	N
5	Out of town	0.7	37	N
6	Not met	3.3	181	N
7	Moved to unknown location	0.8	42	N
8	Disabled	0.4	20	N
9	Other reason	0.3	15	N
10	Moved abroad	0.4	22	N
11	Research protection	13.7	747	N
12	Too young	2.3	128	N
13	Lives in Greenland	0.3	16	N
14	Missing	0	1	N
15	Emigrated	2.4	133	N
16	Deceased	1.5	83	N
	Total	100.0	5,468	

Table 2. Descriptive Statistics. Means, Standard Deviations and Variable Ranges

	Mean	SD	Min	Max
Interviewers (*N* = 93)				
Physical appearance				
Facial attractiveness	4.54	1.03	2.6	7.7
Voice attractiveness	0	0.97	-2.2	1.9
Body Mass Index (BMI)	25.50	3.52	18.1	37.2
Height (centimeters)	173.07	8.49	153	196
Personality				
Self-Esteem	24.23	3.46	15	30
Extraversion	8.10	1.86	4	12
Agreeableness	8.23	1.45	4	10
Conscientiousness	7.37	1.78	4	10
Neuroticism	4.06	1.54	2	9
Openness	7.28	2.11	2	10
Sex (= woman)	0.48	0.50		
Age	62.76	9.18	24.0	80
Experience (years)	6.03	6.65	0	40
Education	4.62	1.15	1	6.0
Respondents (*N* = 3,518)*				
Pleasantness of interview	4.41	0.80	1	5
Sex (= woman)	0.52	0.50		
Age	27.8	5.09	18	42
DLSY-C sample (*N* = 4,026)**				
Interview on a Saturday*	0.06	0.23	0	1
Interview on a Sunday*	0.06	0.23	0	1

Note: * *N* is total number of respondents interviewed (code 1 and 2 in Table 1),
** *N* is total number of respondents eligible for interview (code 1-3 in Table 1).

Table 3. Results from Two-Stage Regressions. Parameter Estimates, Standard Errors in Parenthesis and Marginal Effects in Brackets

Model	1	2	3	4	5
Pleasantness of interview					
Interviewer					
Facial attractiveness	-0.030				-0.038
	(0.022)				(0.026)
Voice attractiveness		-0.014			-0.001
		(0.022)			(0.024)
BMI			-0.004		-0.006
			(0.008)		(0.008)
Height				0.003	0.004
				(0.003)	(0.003)
Probability of interview					
Facial attractiveness	0.081				0.066
	(0.033)*				(0.037)$^{\#}$
	[0.016]				[0.013]
Voice attractiveness		0.025			-0.001
		(0.033)			(0.036
		[0.005]			[-0.0002]
BMI			-0.019		-0.016
			(0.010)$^{\#}$		(0.009)$^{\#}$
			[-0.004]		[-0.003]
Height				0.007	0.004
				(0.006)	(0.005)
				[0.001]	[0.001]
Saturday	-0.725	-0.723	-0.759	-0.735	-0.760
	(0.130)***	(0.130)***	(0.131)***	(0.130)***	(0.134)***
	[-0.201]	[-0.201]	[-0.210]	[-0.204]	[-0.211]
Sunday	-0.382	-0.381	-0.376	-0.367	-0.398
	(0.139)**	(0.129)**	(0.130)**	(0.129)**	(0.133)**
	[-0.093]	[-0.093]	[-0.090]	[-0.088]	[-0.096]
Rho (ρ)	0.04	0.04	0.06	0.04	0.04
Log-Likelihood	-5,007	-5,013	-4,925	-5,058	-4,870
N (respondents)	3,563	3,563	3,510	3,605	3,468
N (interviewers)	87	87	87	89	85

Note: *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, $p <^{\#} 0.10$. Standard errors adjusted for clustering of respondents within interviewers. Models also include interviewer's sex, age, experience, and education. Model for pleasantness of interview also includes respondent's sex and age.

Table 4. Decompositions of the Effect of Physical Attractiveness on Cooperation Rates. Binary Probit Models

Model	Facial Attractiveness			BMI		
	Reduced	Full	Decomp.	Reduced	Full	Decomp.
Interviewer						
Facial attractiveness	0.079	0.053				
	(0.034)*	(0.033)				
	[0.016]	[0.011]				
BMI				-0.01938	-0.01947	
				(0.0099)[#a]	(0.00983)*	
				[-0.00380]	[-0.00378]	
Decomposition:						
Percentage of effect of physical attractiveness explained by personality			33.2			4.3
Percentage of effect of physical attractiveness explained by other interviewer characteristics			7.2			8.8
Personality						
Rosenberg Self-Esteem		0.019	65.3		0.023	88.1
		(0.010)*			(0.010)*	
Extraversion		-0.016	-6.5		-0.046	-45.0
		(0.021)			(0.019)*	
Agreeableness		-0.014	-1.1		-0.006	7.9
		(0.025)			(0.025)	
Conscientiousness		-0.009	-7.0		-0.001	-15.4
		(0.020)			(0.019)	
Neuroticism		-0.012	7.5		-0.041	-325.0
		(0.022)			(0.022)[#]	
Openness		0.027	41.8		0.018	389.4
		(0.016)[#]			(0.016)	
Log-Likelihood	-1,267	-1,262		-1,225	-1,217	
N (respondents)	3,459	3,459		3,406	3,406	
N (interviewers)	85	85		85	85	

Note: *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, $p <$ [#] 0.10, [a] $p = 0.051$. Standard errors adjusted for clustering of respondents within interviewers. Models also include interviewer's sex, age, experience, education, and dummy variables for being approached for an interview on a Saturday or a Sunday.

Table A1. Principal Axis Factor Analysis of Voice Attractiveness Items

	Factor loadings
Pleasant	0.700
Competent	0.885
Physically attractive	0.789
Trustworthy	0.883
Extroverted	0.791
Confident	0.836
Percent variance explained	0.898

Note: $N = 93$.

Table A2. Correlations between the Physical Attractiveness and Personality Variables

	Facial Attractiveness	Voice Attractiveness	BMI	Height
Facial attractiveness				
Voice attractiveness	0.43 ***			
BMI	-0.24 *	-0.07		
Height	0.18 #	0.08	-0.04	
Rosenberg Self-Esteem	0.21 *	0.10	-0.01	0.11
Extraversion	0.01	0.02	-0.02	-0.09
Agreeableness	0.02	-0.11	-0.01	-0.07
Conscientiousness	-0.02	-0.05	-0.14	-0.02
Neuroticism	-0.02	0.13	-0.21 *	-0.14
Openness	0.20 #	-0.004	-0.31 **	0.24 *

Note: *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, $p <$ # 0.10. $N = 93$.

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