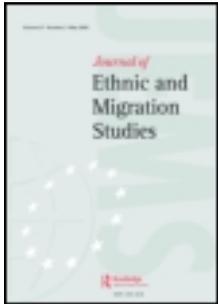


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The Big Five Personality Traits and Attitudes towards Immigrants

Aina Gallego and Sergi Pardos-Prado

Recent research suggests that the Big Five personality traits are important determinants of a wide range of political and social attitudes. In spite of this, the impact of personality traits on attitudes towards immigrants has been unattended in sociological research. On the basis of insights from personality psychology, we extend the sociological approach to immigrant-specific prejudice by analysing the effects of personality using a large and nationally representative sample of the Dutch population. Moreover, we consider personality jointly with situational predictors of attitudes towards immigrants. The results confirm that some personality traits are associated with attitudes towards immigrants, beyond the effect of socio-economic, attitudinal and contact predictors. We conclude that combining insights from sociology and personality psychology in the study of dispositional and situational determinants of attitudes towards immigration is a fruitful avenue for research.

Keywords: Attitudes Towards Immigrants; Personality; Big Five Models

Introduction

Does personality influence attitudes towards immigrants? If so, which personality traits are relevant? Political scientists have recently found that personality, as conceptualised by the Big Five model, influences attitudes towards social and economic issues (Gerber et al. 2010), ideology (Carney et al. 2008; Jost, Nosek, and Gosling 2008; Jost 2006), political discussion (Hibbing, Ritchie, and Anderson 2011), participation in protest activities (Opp and Brandstätter 2010), voter turnout and political participation (Gerber et al. 2011b; Mattila et al. 2011; Mondak and Halperin 2008), as well as a wide range of political attitudes and behaviours (Gerber et al. 2011b; Mondak 2010; Mondak and Halperin 2008; Mondak et al. 2010). Such broad-ranging

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effects suggest that personality may also impact attitudes towards immigrants. In spite of this, the many studies by political scientists and sociologists have focused on socio-economic, cultural, ideological and interpersonal contact determinants of attitudes towards immigrants (Burns and Gimpel 2000; Ceobanu and Escandell 2010; Coenders and Scheepers 2008; Hainmueller and Hiscox 2010; Hayes and Dowds 2006; Masso 2009; Meuleman, Davidov, and Billiet 2009; Pettigrew and Tropp 2006; Semyonov, Raijman, and Gorodzeisky 2006, 2008; Rustenbach 2010; Schlueter and Scheepers 2010; Sniderman, Hagendoorn, and Prior 2004). To date, they have mostly overlooked personality traits.

A related literature in personality psychology has studied the relationship between personality, as conceptualised by the Big Five model, and prejudice. From a sociological perspective, this literature presents three main areas open to expansion. First, studies in personality psychology have overwhelmingly focused on generalised prejudice or on specific prejudice types, such as sexism or racism. However, they have only rarely examined attitudes towards immigrants.¹ This is relevant because the magnitude of effects of personality traits varies across prejudice domains (Akrami, Ekehammar, and Bergh 2011; Sibley and Duckitt 2008). For example, Sibley and Duckitt 2008, 266) report that the trait of agreeableness is more weakly associated with racism than with generalised prejudice. Hence, the findings that apply to other prejudice domains may or may not apply to attitudes towards immigrants. Second, previous research has found that the correlation between personality traits and prejudice is larger in student samples than in adult convenience samples (Sibley and Duckitt 2008, 266).² If the effect sizes vary across population subgroups, and belonging to these groups predicts the probability of inclusion in convenience samples, the estimates obtained using non-representative samples can also be biased (Druckman and Kam 2011). Hence, examining the external validity of previous results using nationally representative samples is worthwhile. Finally, previous studies have not analysed the impact of personality traits together with factors known to predict attitudes towards immigrants such as education, occupational status or income. For this reason, we know little about the relative magnitude of personality effects compared to the effects of situational or attitudinal predictors.

We help address these issues by examining the impact of the Big Five personality traits on attitudes towards immigrants using a large and representative sample of the Dutch population. The survey included 50 items from the *International Personality Item Pool* (IPIP) (Goldberg et al. 2006) as well as measures of respondents' socio-economic status, demographics and ideology. To the best of our knowledge, this paper is the first to assess the role of personality using a nationally representative sample, not in isolation from but rather alongside other established accounts of anti-immigrant attitudes.

This paper advances towards the integration of sociological and personality psychology perspectives of attitudes towards immigration. To be clear, however, it does provide a comprehensive empirical examination of all the ways in which dispositional and situational factors can relate to each other. This is because the

relationship between the many factors involved (personality traits, socio-economic and demographic factors, social attitudes, interpersonal contact with immigrants and attitudes towards immigrants) is too complex to address in a single study. Rather, this paper is a first step in this research agenda.

The paper proceeds as follows. First, we discuss the Big Five personality traits model and present the theoretical arguments that link personality with attitudes towards immigrants. Next, we introduce the Longitudinal Internet Study for the Social Sciences (LISS), a large, nationally representative survey in the Netherlands. In the results section, we then estimate the association between personality, attitudes towards immigrants, socio-economic status, ideology and contact with immigrants. Finally, we discuss the implications of the findings and avenues for further research.

Theory

Personality as a Predisposing Factor

Personality psychologists mostly agree that personality can be summarised by five traits. Numerous analyses by multiple methods have concluded that, at a very broad level of abstraction, the Big Five traits capture the main dimensions of individual variation (John, Naumann, and Soto 2008; McCrae and Costa 2008). Extraversion describes an energetic approach towards the world and includes features such as sociability, activity, assertiveness and experiencing positive emotions. Agreeableness describes a pro-social and communal orientation, as opposed to antagonism, and is associated to being generous, trusting, gentle and kind. Conscientiousness implies a high level of control over the impulses directed at facilitating task- and goal-oriented behaviours and is linked to being dutiful, organised and responsible. Neuroticism, as contrasted with emotional stability, is associated with anxiety, irritability, sadness, being easily upset and more generally with negative emotionality. Openness to experience is related to being creative, curious, intellectual, independent-minded and having a broad, deep as well as complex mental and experiential life.

The same five factors emerge in very different cultures and languages (Allik and McCrae 2004; Heine and Buchtel 2009; Schmitt et al. 2007), suggesting that they capture a human universal. Personality psychologists think of traits as dispositions or reaction norms for specific cognitive processes and behaviour, contingent on the situation (Denissen and Penke 2008, Mischel and Shoda 1995; Canli 2008). Personality shapes both the likelihood of response to situational features and the intensity of the response.

Personality makes for an attractive explanation of social attitudes and behaviours because it is internal to the individual and, to a large extent, exists previous to adult social experiences: it has large heritability coefficients (Medland and Hatemi 2009; Yamagata et al. 2006), is expressed early in both humans and other animal species (John, Robins, and Pervin 2008), and is stable during adulthood (Caspi and Roberts 2001; Hampson and Goldberg 2006; Terracciano, McCrae, and Costa 2010). Recently,

political scientists have provided extensive evidence that personality traits are correlated with a wide range of social, political as well as economic attitudes and behaviours (Gerber et al. 2010, 2011a, 2011b; Mondak 2010; Mondak and Halperin 2008; Mondak et al. 2010). This being said, these same political scientists have not examined the possibility that the Big Five personality traits correlate with attitudes towards immigrants, beyond the effect of well-established sociological predictors.

Personality and Attitudes towards Immigrants

Personality traits can affect how people react to immigrant minorities. In particular, agreeableness and openness to experience have been identified as the main personality traits predicting generalised prejudice (Ekehammar and Akrami 2003; Sibley and Duckitt 2008), racism (Jackson and Poulsen 2005; Silvestri and Richardson 2001) and, more importantly for this study, attitudes towards immigrants (Akrami, Ekehammar, and Bergh 2011).

To be sure, the exact reasons why personality affects attitudes towards immigrants are complex. In particular, we must consider how personality shapes factors previously studied in the sociological literature. Previous research has identified three broad sets of individual-level correlates of attitudes towards immigrants (Ceobanu and Escandell 2010, 317). The first group comprises of socioeconomic and demographic characteristics, such as education or income. The second group encompasses identities, ideology and social attitudes. The third group refers to interpersonal contact with immigrants.

We expect agreeableness to correlate with pro-immigrant attitudes for several reasons. Persons high in agreeableness have a caring and kind orientation towards other people in general. They should be both more likely to empathise with immigrants and more reluctant to engage in any kind of conflict, including intergroup conflict. In addition, agreeableness has been found to predict support for more liberal policies and parties in the USA (Carney et al. 2008; Gosling et al. 2003),³ Italy (Vecchione and Caprara 2009) and Germany (Schoen and Schumann 2007), and liberal ideology and attitudes predict more positive attitudes towards immigrants. Agreeableness may also increase the likelihood of engaging in contact with immigrants. For example, a study found that agreeable white Americans have a higher propensity to have contact with African-Americans, and that this fact partially explains their more favourable opinions towards this group (Jackson and Poulsen 2005). Previous research on prejudice is consistent with the expectation that agreeableness correlates positively with attitudes towards immigrants. A meta-analysis found that the average correlation with prejudice is -0.22 , both in bivariate analyses and when controlling for the social attitudes of a social dominance orientation and right-wing authoritarianism (Sibley and Duckitt 2008).

Openness to experience can generate more positive attitudes towards immigrants in several ways. People high in openness are more tolerant and enjoy different types of diversity (John, Robins, and Pervin 2008). They are also more attentive to

information disconfirming stereotypes (Flynn 2005), which may reduce prejudice in general. Openness correlates also with all three groups of predictors of attitudes towards immigrants. It is a well-known correlate of higher educational attainment (Goldberg et al. 1998), which in turn is one of the strongest predictors of attitudes towards immigrants. Studies in different countries have found that people who score high in measures of openness also have more liberal political attitudes (Caprara et al. 2006; Carney et al. 2008; Jost 2006; Schoen and Schumann 2007), which are associated with positive attitudes towards immigrants. People high in openness may also be more interested in different cultures and more prone to befriend people from an immigrant origin (see Jackson and Poulsen 2005). Previous studies have found that openness is associated with lower levels of prejudice, and a meta-analysis found that the magnitude of the correlation is substantial (Sibley and Duckitt 2008).

As for neuroticism, there are conflicting expectations. On the one hand, a meta-analysis (Sibley and Duckitt 2008) concludes that neuroticism is completely unrelated to prejudice. Previous research would suggest that neuroticism is unrelated to attitudes towards immigration, if we assume that anti-immigrant attitudes respond in the same way as generalised prejudice. On the other hand, sociological perspectives on attitudes towards immigrants show that these attitudes become even more negative when people feel threatened by outsiders (Esses, Jackson, and Armstrong 1998; Sides and Citrin 2007; Sniderman, Hagendoorn, and Prior 2004; Stephan et al. 2005). The trait of neuroticism increases the salience of personal threats and the propensity to react to them. Even if neuroticism is generally more associated with personal than social threats, sociological research on anti-immigrant attitudes shows that both collective and individual ethnic threats can reinforce each other. Since neurotic people are more sensitive to some threats, they could be more likely to consider immigrants as threatening and thus reject them.⁴ However, it is unclear whether immigration is comparable to other kinds of threats (like homosexuals to moral values, for instance) and therefore whether the relationship between neuroticism and perceived threats is applicable in this case. Overall, the previous lines of inquiry lead to contradictory expectations and do not allow us to derive clear hypothesis regarding the effect of neuroticism on attitudes towards immigration.

Conscientiousness has not been found to predict prejudice, although there are two main ways by which this trait can relate to attitudes towards immigrants. Across countries, conscientiousness is associated with more conservative attitudes (Caprara et al. 2006; Carney et al. 2008; Gerber et al. 2010; Jost 2006; Schoen and Schumann 2007), which in turn predict anti-immigrant attitudes. Then again, conscientious people are more likely to obtain a high level of education and income (Goldberg et al. 1998; Judge et al. 2006; O'connor and Paunonen 2007), and these two socio-economic aspects predict positive attitudes towards immigrants. These two paths suggest conflicting expectations regarding the direction of the correlation between conscientiousness and attitudes towards immigrants. At the outset, the direction of the relationship between conscientiousness and attitudes towards immigrants is unclear.

The last trait of the Big Five model is extraversion. A large portion of previous studies have not found strong links between this trait and prejudice (Sibley and Duckitt 2008), so we are without clear-cut expectations.

Data

We examine the correlation between the Big Five personality traits and attitudes towards immigrants using data from the LISS, a high-quality Internet panel study in the Netherlands.⁵ According to Statistics Netherlands,⁶ there are approximately 3.3 million first- and second-generation immigrants in a country of 16.5 million, immigrants making up approximately 20% of the population. The origins of the largest non-Dutch ethnic groups include Morocco, the Antilles and Aruba, Suriname, Germany as well as Turkey. Attitudes towards immigrants are a highly salient topic. The issue of immigration has been hotly contested at the political level since at least 2002, when the anti-Muslim Pim Fortuyn list entered Parliament as the second most voted for item (with 17% of the popular vote). In 2006, the anti-immigration Party for Freedom, led by Geert Wilders, entered Parliament as the fifth largest party with 6% of the vote. Their share rose to 16% in the 2010 election.

Since October 2007, the LISS has fielded monthly waves to approximately 5000 households and 8000 individuals. The waves deal with a wide range of topics, including social and political attitudes. The households are drawn from a true probability sample of the Dutch population. After sampling, households are contacted to ensure participation in multiple waves over a seven-year period. Participation in every wave is remunerated to reduce non-response. The project provides households that had no previous internet access with a free computer and internet connection. As a consequence of these high standards, the response rates are usually close to 80%, and the representativeness of the sample is high. Research has found that the quality of responses (the strength of the relationship between the latent variables and the observed response) is similar or higher in the LISS than in the European Social Survey, one of the highest-quality, face-to-face samples used in social and political research (Revilla and Saris 2012).

Two of the core monthly waves focus on psychological characteristics and social attitudes. The personality measures were asked in May 2008, with a follow-up study in August to non-respondents of this wave. Non-respondents were contacted up to six times to request their participation. Of the 8722 household members selected to participate in the survey, 6808 (78.1%) responded to the questionnaire. Respondents' political attitudes were asked in the 'Politics and Values' questionnaire, collected in December 2007, with a second round in March 2008. The selected number of households was 8204, and 6811 (83.0%) responded. There were 5992 individuals who filled out both questionnaires.

The dependent variable of interest is 'attitudes towards immigrants'. In order to measure it, we selected four items asked in the Politics and Values round of the LISS survey. The wording of the questions is as follows:

- 'It is good if society consists of people from different cultures'
- 'Legally residing foreigners should be entitled to the same social security as Dutch people'
- 'There are too many people of foreign origin or descent in the Netherlands (reversed)
- 'It does not help a neighbourhood if many people of foreign origin or descent move in' (reversed).

The respondents had 5-point Likert response options (fully disagree to fully agree). The dependent variable is a standardised additive index of responses to the four questions, these items forming a reliable scale (Cronbach's $\alpha = 0.72$). Higher values in this variable imply more positive attitudes towards immigrants.

The Big Five personality traits were measured using 50 items (10 items per domain) from the IPIP (Goldberg et al. 2006).⁷ Respondents were told: 'Please use the rating scale below to describe how accurately each statement describes you'. The response options ranged from 1 'very inaccurate' to 5 'very accurate'. The responses produced the expected rotated five-factorial solution with high-reliability coefficients. Sample items are⁸:

- Openness to experience: 'Am not interested in abstract ideas', 'Am quick to understand things', 'Spend time reflecting on things' (Cronbach's $\alpha = 0.77$).
- Conscientiousness: 'Pay attention to details', 'Get chores done right away', 'Follow a schedule' (Cronbach's $\alpha = 0.77$).
- Extraversion: 'Am quiet around strangers', 'Feel comfortable around people', 'Don't like to draw attention to myself' (Cronbach's $\alpha = 0.86$).
- Agreeableness: 'Feel little concern for others', 'Sympathise with others' feelings', 'Take time out for others' (Cronbach's $\alpha = 0.75$).
- Neuroticism: 'Get stressed out easily', 'Have frequent mood swings', 'Often feel blue' (Cronbach's $\alpha = 0.87$).

In addition to personality traits, we consider other predictors of attitudes towards immigrants; as has been previously discussed, these are socio-economic position, ideology and social attitudes, contact with immigrants (Ceobanu and Escandell 2010), along with age and sex.

The education level of the respondents was coded into five categories: primary or lower secondary (29%); intermediate vocational education (25%); higher vocational education (7%); some college or university (37%); and other situations or still in education (2%). The categories are introduced as dummies in the regression analyses to allow for non-linearity in the relationship between education and attitudes towards immigrants.

Besides education, labour market situation is the socio-economic variable most frequently associated with attitudes towards immigrants (Ceobanu and Escandell 2010). Unemployed individuals hold on average more negative attitudes towards immigrants, while students have more positive attitudes. We code the variable into

four categories: employed (62%), unemployed (2%), student (6%) and other situations (30%).

The income measure is a recodification of personal net monthly income into five categories: 1000 Euros or less (33%); 1001–1500 Euros (21%); 1501–2000 Euros (21%); 2001 Euros or more (20%); don't know/no answer (6%). Again, the categories are introduced as dummies to allow for non-linearity in the relationship between income and attitudes towards immigrants.

Ideology is measured as self-placement in the left–right scale. The question wording was: 'Where would you place yourself on the scale below, where 0 means left and 10 means right'. The responses were transformed into a standardised scale for ease of comparison with coefficients of other continuous variables. A separate dummy variable captures respondents who do not know or who fail to report their ideology (13%).

Having a strong national identity is also known to predict attitudes towards immigrants (Gijssberts, Hagendoorn, and Scheepers 2004). Our measure of attachment to the Dutch in-group is the standardised factor score of responses to the following four statements: 'I consider myself to be a typical Dutch person'; 'My Dutch identity is an important part of me'; 'I feel truly connected to other Dutch people'; and 'I am glad to be Dutch' (Cronbach's $\alpha = 0.89$).

For most respondents, the only measure of intergroup contact available in LISS is derived from responses to five questions asking about having immigrant friends from the five most common non-Dutch ethnicities (Antillean, Indonesian, Moroccan, Surinamese and Turkish). Having immigrant friends is more strongly associated with tolerance than with other measures of intergroup contact (Pettigrew and Tropp 2006). This measure of contact is problematic because respondents may have immigrant friends from ethnicities other than these five, and we cannot know how many friends from these ethnicities respondents have. We created a dichotomous variable which takes on a value of 1 if the respondent has friends from any of the five main ethnicities, and 0 otherwise. Most respondents (58%) do not have any friends from these ethnicities.⁹

These last two variables were not asked in the core module of LISS, but rather in special modules. For this reason, the information is not available for all respondents, and the number of cases decreases in the models that include all covariates. Table 1 displays the descriptive statistics of the variables.

The distribution of some of the variables of interest, particularly neuroticism and attachment to Dutch identity, is skewed. We have examined if the results change when using different transformations of the variables,¹⁰ but the substantive differences are very small. For ease of interpretation, the empirical analyses use the untransformed versions of these variables.

Results

We first examine the bivariate correlations between the Big Five personality traits, the socio-economic situation, ideology and intergroup contact. Table 2 contains the correlation matrix of the main variables.

Table 1. Descriptive statistics of the variables.

	Mean	Std. Dev.	Min.	Max.	Obs.
<i>Continuous variables</i>					
Attitudes towards immigration	0	1	−2.88	2.85	5579
Agreeableness	0	1	−4.71	2.86	5638
Neuroticism	0	1	−2.45	3.79	5638
Extraversion	0	1	−3.54	3.18	5638
Conscientiousness	0	1	−4.12	2.36	5638
Openness	0	1	−4.03	3.23	5638
Ideology, excluding DK	0	1	−2.69	2.44	5581
Attachment to Dutch identity	0	1	−3.35	1.43	4258
<i>Binary variables</i>					
Male	0.46	0.50	0	1	5992
Don't know ideology	0.13	0.33	0	1	5581
Immigrant friend	0.42	0.49	0	1	4258
<i>Categories introduced as dummies</i>					
Age (in four categories)	2.32	0.96	1	4	5992
Education (in five categories)	2.58	1.29	1	5	5992
Income (in five categories)	2.44	1.28	1	5	5992
Occupation (in five categories)	2.03	1.37	1	4	5992

The correlations between personality traits and attitudes towards immigrants in this Dutch sample are slightly different from the correlations found in studies of prejudice. The most similar result is for agreeableness. The correlation with attitudes towards immigrants in our study is 0.16 and highly statistically significant. The meta-analysis of studies of prejudice found an average correlation of 0.22. The correlation between openness to experience and attitudes towards immigrants, which we expected to be large in magnitude, is only 0.05. This figure stands in contrast with the results of the meta-analysis of prejudice. Sibley and Duckitt (2008) reported an average correlation of -0.29 . Such a correlation ranged between -0.15 in studies that use the Big Five inventory (BFI) and -0.41 in studies that use the Revised NEO Personality Inventory (NEO-PI-R), clearly much larger coefficients than we find in this study. Neuroticism appears to be moderately associated with attitudes towards immigrants with a correlation coefficient of 0.09. This being said, neuroticism is not known to be a consistent correlate of prejudice. Conscientiousness, too, is associated with attitudes towards immigrants, with an average correlation of 0.08. Both coefficients are statistically significant. Finally, the results suggest that the bivariate correlation between extraversion and attitudes towards immigrants is weak and statistically non-significant.

The correlations between personality traits and attitudes towards immigrants range between 0.03 and 0.16, and can be considered weak to moderate when compared to other predictors of attitudes towards immigrants. For example, the correlation between attitudes towards immigrants and our single-item measure of left–right ideology is 0.38. When looking at education and Dutch identity, the correlations are respectively 0.31 and 0.24. This suggests that socio-economic and attitudinal factors

Table 2. Correlations among the main variables.

	Imm.	A	N	E	C	O	Age	Edu.	Inc.	Ideol.	Dutch	Friend
Att. immigrants	1.00											
Agreeableness	0.16	1.00										
Neuroticism	− 0.09	<i>0.02</i>	1.00									
Extraversion	−0.03	0.06	−0.03	1.00								
Conscientiousness	− 0.08	0.05	−0.03	− <i>0.01</i>	1.00							
Openness	0.05	0.04	− <i>0.01</i>	0.07	<i>0.004</i>	1.00						
Age (in years)	− <i>0.01</i>	0.05	− 0.07	− 0.09	0.18	− 0.10	1.00					
Education (four cat.) ^a	0.31	− <i>0.004</i>	− 0.06	0.04	− 0.10	0.17	− 0.23	1.00				
Income (four cat.) ^b	0.11	− 0.21	− 0.19	<i>0.01</i>	− <i>0.02</i>	0.09	0.17	0.31	1.00			
Left–right ideol.	− 0.38	− 0.11	− <i>0.02</i>	0.08	0.10	− <i>0.01</i>	−0.03	− 0.09	0.03	1.00		
Dutch identity	− 0.24	0.05	<i>0.02</i>	0.06	0.12	− <i>0.03</i>	0.09	− 0.15	− 0.07	0.16	1.00	
Immigrant friends	0.10	0.10	−0.03	0.09	− 0.07	0.10	− <i>0.02</i>	0.07	<i>0.02</i>	−0.06	− 0.10	1.00

Note: Correlations in italics are non-significant ($p > 0.05$); correlations in bold are significant at $p < 0.001$ (two-tailed tests).

^aExcludes respondents in education at the time of the survey.

^bExcludes respondents who answered ‘don’t know’ to the income questions.

are more strongly associated with attitudes towards immigrants than personality traits.

The relationship between personality traits and socio-economic, attitudinal and contact predictors of prejudice is broadly consistent with our expectations. However, there are two main unexpected results. First, education is negatively correlated with conscientiousness in this Dutch sample. Age may be a confounded variable, it being negatively correlated with conscientiousness and positively correlated with education. Within age groups, we find no correlation between conscientiousness and education, while a positive correlation was expected. The second surprising result is that openness to experience is not correlated with self-reported left–right ideology in this sample. This finding is relevant because the lack of a clear association between openness to experience and social attitudes in this sample can help explain the very weak correlation between openness to experience and attitudes towards immigrants. Further research is needed to establish if this non-existent relationship is characteristic of the Netherlands or if this result only applies to our sample due to sampling variability. Another possibility is that the IPIP 50-item scale is not an appropriate measure of openness.

We next turn to a multivariate analysis of the relationship between personality traits, attitudes towards immigrants, as well as socio-economic position, social attitudes and contact with immigrants. Although the theory acknowledges the possibility that there are multiple mediated relationships, a mediation analysis is well beyond the scope of this study. Mediation analyses require that a large number of assumptions be met, such as having no misspecification of causal direction no omitted variables, and no imperfect measurement (MacKinnon, Fairchild, and Fritz 2007, 8).¹¹ Unfortunately, these assumptions cannot be met for several reasons. We cannot rule out recursive relationships between attitudes towards immigrants and predictors such as intergroup contact or ideology.¹² The dataset we use does not have highly valid and reliable measures of intergroup contact and social attitudes. Moreover, the fact that we look at 13 different variables implies that the number of possible relationships is extremely large.

Instead of undertaking a mediation analysis, we follow the conventional approach in sociological studies and regress attitudes towards immigrants on the Big Five personality traits, adding the measures of the three types of predictors of attitudes towards immigrants step-wise. We discuss the limitations of this analysis and further avenues for research in the conclusions sections. Table 3 shows the results of the multivariate ordinary least squares (OLS) analyses. Model 1 only includes the Big Five personality traits as predictors of attitudes towards immigrants. Model 2 adds socio-economic and demographic predictors. Model 3 adds left–right ideology and Dutch identity. Model 4 includes the indicator of intergroup contact. Finally, Model 5 regresses attitudes towards immigrants on personality and all sets of predictors.

Model 1 suggests that all five personality traits are associated with attitudes towards immigrants, although the magnitude of the relationship varies substantially across traits. Congruent with the results of the bivariate analysis, agreeableness shows

Table 3. Personality traits as predictors of pro-immigrants attitudes.

	Model 1: personality	Model 2: socio-econ.	Model 3: ideology	Model 4: contact	Model 5: all
Agreeableness	0.17*** (0.01)	0.14*** (0.01)	0.15*** (0.02)	0.17*** (0.02)	0.13*** (0.02)
Openness to experience	0.05*** (0.01)	0.01 (0.01)	0.02 (0.01)	0.03* (0.02)	-0.01 (0.01)
Neuroticism	-0.10*** (0.01)	-0.07*** (0.01)	-0.09*** (0.01)	-0.10*** (0.02)	-0.07*** (0.01)
Conscientiousness	-0.10*** (0.01)	-0.09*** (0.01)	-0.04* (0.02)	-0.09*** (0.02)	-0.03* (0.02)
Extraversion	-0.05*** (0.01)	-0.05*** (0.01)	-0.01 (0.01)	-0.06*** (0.02)	-0.02 (0.01)
Age in years		0.04*** (0.01)			0.02** (0.01)
Age squared		-0.0003*** (0.00006)			-0.0001* (0.00007)
Sex (male)		-0.17*** (0.03)			-0.14*** (0.04)
Education: interm. vocational Ref. low secondary or less		0.29*** (0.04)			0.25*** (0.04)
Higher vocational education		0.44*** (0.06)			0.28*** (0.06)
College or university		0.72*** (0.04)			0.54*** (0.04)
Other or still in education		0.32** (0.10)			0.26* (0.11)
Income: 1001–1500 euros Ref. > 1001 euros		-0.01 (0.04)			-0.08 + (0.04)
1501–2000 euros		0.06 (0.05)			0.02 (0.05)
2001 euros or more		0.17*** (0.05)			0.14* (0.05)
Don't know/no answer		-0.22*** (0.06)			-0.17* (0.07)
Employment: unemployed Ref. employed		-0.08 (0.11)			-0.27* (0.11)
Student		0.25** (0.08)			0.14 (0.09)
Other situations		-0.03 (0.04)			-0.05 (0.04)
Ideology: left–right position			-0.33*** (0.02)		-0.31*** (0.01)
Doesn't know left–right			-0.32*** (0.05)		-0.21*** (0.05)
Strong Dutch identity			-0.18*** (0.02)		-0.15*** (0.01)
Has immigrant friends				0.16*** (0.03)	0.08** (0.03)
Constant	-0.001 (0.01)	-1.28*** (0.15)	0.03 + (0.02)	-0.08*** (0.02)	-0.78*** (0.17)
R-squared	0.046	0.152	0.214	0.057	0.276
Obs.	4983	4929	3612	3612	3566

+ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

the strongest association. An increase of one standard deviation in this trait is associated with an increase of one-sixth of a standard deviation in positive attitudes towards immigrants. An increase of one standard deviation in neuroticism and conscientiousness generates a decrease of one-tenth of a standard deviation in positive attitudes towards immigrants. For openness and extraversion, the magnitude of the change is quite small at approximately one-twentieth of a standard deviation. Openness is associated with more positive attitudes towards immigrants, while extraversion is associated with more negative attitudes.

When introducing socio-economic and demographic predictors (Model 2), the magnitude of some of the coefficients becomes weaker. In particular, the relationship between openness to experience and attitudes towards immigrants cannot be distinguished from zero. This finding is largely consistent with the idea that education may be one reason why people who have high levels of openness have more positive attitudes towards immigrants. Socio-economic factors are more strongly related to attitudes towards immigrants than personality traits. For example, having a college or university education is associated with an increase of three quarters of a standard deviation in positive attitudes towards immigrants, compared to the attitudes of people with low secondary education or less.

Model 3 includes left–right ideology and Dutch identity as predictors of attitudes towards immigrants, along with personality traits. Left–right ideology in particular has relatively strong effects; an increase of one standard deviation in right-wing self-reported ideology is associated with a decrease in positive attitudes towards immigrants by one-third of a standard deviation. The weak relationship between openness and extraversion and attitudes towards immigrants becomes non-significant in this model, and the association between conscientiousness and attitudes towards immigrants diminishes considerably.

Model 4 confirms that intergroup contact, although imperfectly measured, is associated with more positive attitudes towards immigrants. Having friends from one of the main ethnicities is associated with an increase of 0.15 standard deviations in positive attitudes towards immigrants. For this variable, one should be particularly cautious not to interpret the association as causal, as reverse causation may drive the result: individuals who have positive attitudes towards immigrants may be more likely to befriend persons of foreign origin. The coefficients of the Big Five personality traits are largely stable in this model, relative to Model 1.

Our final model includes all predictors. Agreeableness is still moderately correlated with attitudes towards immigrants; a one standard deviation increase in agreeableness is associated with an increase of 0.13 standard deviations in positive attitudes towards immigrants, holding socio-economic situation, ideology and other predictors constant. In turn, a one standard deviation increase in neuroticism is associated with slightly more negative attitudes towards immigrants, even when holding other predictors constant. In this last model, the partial effects of openness to experience, conscientiousness and extraversion are very small or undistinguishable from zero.

Again, education and left–right ideology emerge as particularly relevant correlates of attitudes towards immigrants.

Of particular relevance are the results regarding neuroticism. Contrary to results of previous research predicting prejudice (Sibley and Duckitt 2008), neuroticism is significantly associated with negative attitudes towards immigration. The results are considerably stable across models, the coefficients only becoming somewhat smaller in models that include more controls.

There are two possible ways to make sense of this result. First, neuroticism may predict attitudes for some types of prejudice, but not for others. Different groups can be perceived as threatening to a varying degree. While some groups, such as women or homosexuals, may not be particularly threatening, immigrants may be more likely to be perceived as a threat. Neuroticism may only generate negative attitudes mainly groups many people perceive as threatening, such as immigrants. Even if, as mentioned above, neuroticism is not a predictor of perceived societal threats, previous research has shown that individual and societal threats posed by immigrants are compatible and can reinforce each other (Rosenstein 2008).

Second, the extent to which different population subgroups perceive immigrants as threatening can also vary. According to realistic conflict theory, some groups, such as highly educated people, are less likely to be in direct labour market competition with immigrants and thus should not feel particularly threatened by them economically (Burns and Gimpel 2000). The highly educated also have more cosmopolitan attitudes and are less concerned about threats to national identity (Woodward, Skrbis, and Bean 2008). If this is correct, the correlation between neuroticism and attitudes towards immigrants is likely to be larger for the general population than for the highly educated.¹³ Nevertheless, most research on the relationship between personality and prejudice has used student and highly educated samples. Hence, previous estimates may be downwardly biased. Both types of heterogeneity (across prejudice domains and across population subgroups) can help to explain why previous studies have not found an association between neuroticism and prejudice. However, at this point, it is not possible to rule out that this result is specific of our sample.

Conclusions

This research shows that personality traits, largely overlooked in the sociological literature, influence attitudes towards immigrants. Previous studies in personality psychology have found that agreeableness and openness to experience are the two main personality factors influencing general prejudice levels (Sibley and Duckitt 2008). Our study focuses on attitudes towards immigrants and clearly confirms the importance of agreeableness. Departing from previous results, we find a robust negative association between neuroticism and attitudes towards immigrants. We also find a negative association with conscientiousness, although this relationship weakens substantially in models that include ideology. One well-known predictor of prejudice,

openness to experience, turns out to be only weakly related to attitudes towards immigrants in this sample.

There are a number of ways to make sense of the differences with previous findings. The first and more obvious explanation is that we focus on attitudes towards immigrants instead of generalised prejudice or other specific prejudice domains. Individuals who score high on one domain of prejudice, such as sexism, racism, xenophobia, anti-Semitism or devaluation of homosexuals, also tend to score higher on other domains (Zick et al. 2008). However, as we have explained above, previous research has found heterogeneous effects of personality across prejudice domains. Hence, conclusions that apply to one domain of prejudice do not need to apply neatly to others. In particular, we have argued that neuroticism may predict attitudes towards immigrants but not other prejudice domains because this trait makes individuals more prone to detect and react to threats, immigrants being perceived as a larger threat than other groups. A second possibility is that the differences are partly due to the dissimilar composition of the samples used. This study is among the first that utilises a large, nationally representative sample with high-quality measures of personality traits together with sociological and attitudinal predictors of attitudes towards immigration. If the effects of personality are heterogeneous across population subgroups, differences in the composition of samples may explain why convenience and representative samples yield different results. A third explanation is that the associations found may be idiosyncratic to the Netherlands, or even to this particular sample due to sampling variability. Finally, the instruments may be affecting the results if different personality scales emphasise aspects of personality that are more or less related to attitudes towards immigration.

Unfortunately, at this stage it is not possible to adjudicate between these competing possibilities with the available data because research concentrating specifically on personality and attitudes towards immigrants remains scarce, and no comparative surveys with the relevant social and attitudinal indicators for our research (such as the European Social Survey) include personality questions. More research is needed to clarify if the effects of personality vary across prejudice domains, population groups and across countries using representative samples. Given the high quality of our sample, however, we do believe that the results presented here are important and constitute a starting point for further inquiry.

The study's other main contribution to the literature is that, for the first time, it has examined personality traits in conjunction with socio-economic, attitudinal and contact predictors of attitudes towards immigrants. Recent research by Gerber et al. (2010) has concluded that personality traits are as important drivers of variation in social attitudes as sociological, political or economic factors. Our investigation, focusing on attitudes towards immigrants, confirms that understanding how psychological processes influence social phenomena is a worthwhile endeavour. For at least one trait, agreeableness, the association with our dependent variable is of moderate magnitude. Nevertheless, established predictors in the sociological literature on attitudes towards immigrants, such as left–right ideology and education,

still show the most remarkable effects. This is not to mean that we should pitch predictors against each other. It may be more fruitful to think about the formation of attitudes towards immigrants as a complex process. For example, more distant predictors, such as psychological predispositions, can operate through more proximate predictors and can interact with situational factors to generate attitudes towards immigrants. One of the main limitations of this study is that it does not directly assess all the possible mediation and moderation relationships between personality and sociological factors. Future research is needed to examine the exact mechanisms behind why personality affects attitudes towards immigrants.

While personality psychology and sociological research have been separate in the past, this study attempts to integrate these two research traditions. This initial step sets the ground for more comprehensive examinations of the relationship between situational and dispositional factors in predicting attitudes towards immigrants. The results support the claim that both kinds of factors help understand in a more comprehensive manner the origins of attitudes towards immigrants.

Notes

- [1] A recent study investigated the relationship between different dimensions of prejudice (towards women, immigrants, people with disabilities and homosexuality) with agreeableness and neuroticism (Akrami, Ekehammar, and Bergh 2011). The study, conducted in a sample of university students, did not measure the other three personality traits of the Big Five model.
- [2] While the vast majority of studies about the effects of personality traits rely on student participants, a few have used adult samples made up of students' parents (Peterson, Smirles, and Wentworth 1997) or students' neighbours (Van Hiel, Cornelis, and Roets 2007).
- [3] However, Gerber et al. (2010) find that individuals high in agreeableness hold more liberal positions on economic issues, but more conservative positions on social issues.
- [4] In addition, recent work suggests that neuroticism predicts perceived vulnerability to disease (Duncan, Schaller, and Park 2009), which is associated with more negative attitudes towards immigrants (Faulkner et al. 2004; Huang et al. 2011).
- [5] For thorough information on this study, descriptions of the characteristics of the sample, and access to the data see <http://www.lissdata.nl/lissdata/>.
- [6] See <http://www.cbs.nl/>.
- [7] In particular, the Longitudinal Internet Study for the Social Sciences uses the 'New IPIP 50-item scale' (http://iPIP.ori.org/New_IPIP-50-item-scale.htm).
- [8] The full question wording can be found at http://www.lissdata.nl/dataarchive/control_construct_schemes/view/43 (items cp019 to cp069).
- [9] We do not use an additive index because it would not measure how many friends from a different ethnicity a respondent has, but rather from how many ethnicities these friends come from. A respondent with one friend from three different ethnicities would have a higher score than a respondent with many friends from one ethnicity. Moreover, using a continuous measure would assume that having friends from one additional ethnicity increases pro-immigrant attitudes by a constant amount, which seems implausible.
- [10] Results available upon request.
- [11] The results of mediation analyses using observational data are likely to be systematically biased and to overstate the extent of mediation (Bullock, Green, and Ha 2010, 551).

- [12] For example, it is plausible that negative attitudes towards immigration reduce the likelihood of befriending immigrants.
- [13] We have explored this idea in the data and find evidence of an interaction effect: neuroticism is slightly more strongly correlated with attitudes towards immigrants among poorly educated people (results available on request). The coefficients are close to, but do not reach, standard levels of statistical significance.

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