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The Person-Environment Fit of Immigrants to the United States: A Registered Report

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There are notable parallels between processes leading to person-environment fit (PE-fit) and processes of selection and acculturation among U.S. immigrants. Thus, a natural question is: Do immigrants benefit from fitting their new environments? PE-fit appears to have uniformly positive effects in the education, career, and personality literatures, but it is unclear whether this would be the case for immigrants. The present study evaluated the PE-fit of U.S. immigrants (N = 39,195) to their new host communities (9,925 Zip Code Tabulation Areas [ZCTAs]). PE-fit varied across immigrants. On average, immigrant PE-fit was lower (b = 0.23 and b = 0.35) than the PE-fit of U.S. natives (b = 0.47; N = 122,339 from 2,374 ZCTAs). Immigrants more closely matched their community's profile when they were older, more educated, from Western countries, or from countries with French or German as the official language. PE-fit was positively associated with immigrant traits of Honesty, Introspection, Creativity, and Industry. Immigrants experienced better PE-fit when they resided in communities with more educated residents, with residents born abroad—particularly in the same world region—or with residents with a similar ethnic background. Finally, immigrant PE-fit was associated with well-being and self-reported health. We discuss the implications for the study of U.S. immigrants and the field of acculturation and propose future directions.

Keywords: person-environment fit, multiculturalism, immigration, well-being, selection

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The United States has more immigrants than any country in the world and a substantial proportion of U.S. residents—nearly 14%—were born in another country (Pew Research Center, 2020). Immigrants have enormous potential to contribute to innovation and boost economic growth (Hunt, 2017), and immigration improves wages for all workers (Edo, 2019). However, these benefits are contingent on the health and well-being of this population. Conflicting evidence suggests that immigrants are both more (Oh et al., 2021) and less healthy than U.S. residents (Chang, 2019; Rodriguez et al., 2021), termed the "healthy immigrant paradox," although there is substantive heterogeneity in the physical and mental health of this population (Constent, 2017). This suggests that, in addition to systemic barriers to care, important individual differences are at play. It is of major theoretical and practical significance to understand why some immigrants thrive in the United States while others do not. One potential predictor of immigrant health and well-being is person-environment fit.

As person-environment fit (PE-fit)—the match between an individual's psychological characteristics and their environment—is positively associated with outcomes like mental health and well-being (as detailed further below), the application of PE-fit to the experiences of immigrants to the United States has the potential to identify which immigrants thrive in the United States and which do not. Thus, the primary aim of this study was to assess the extent to which immigrants psychologically "fit" into their new communities and how fit impacts important outcomes for immigrants. While the concept of PE-fit has yet to be studied in this population, PE-fit has parallels to the acculturative processes of *selection, integration*, and *assimilation* (e.g., Berry, 2005; Constent, 2017). These works suggest that the application of PE-fit to this context could serve

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as a useful framework for studying the psychological processes of immigration to the United States.

We will first describe the concept of person-environment fit, its association with short- and long-term outcomes, and the processes that generate fit (selection and socialization). Next, we describe prior work on immigration, highlighting the parallels in immigration theory and person-environment fit theory. Finally, we summarize prior work that provides evidence for immigrant fit using a variety of methodologies, grounding our research questions and hypotheses. Overall, the present study will contribute to a larger theoretical framework outlining the conditions under which immigrants thrive in their new countries. In addition, we believe these results may help shed more light on the predictors of person-environment fit; that is, in addition to measuring the potential outcomes of high PE-fit, we also examine potential predictors at both the individual and environmental level.

Person-Environment Fit

The study of PE-fit originated in industrial and organizational psychology with the study of worker-organization fit (Chatman, 1989; Judge & Ferris, 1992; Tsabari et al., 2005) but has since spread to assess the fit of students to universities and majors (Harms et al., 2006; Hill et al., 2016; Roberts & Robins, 2004) and of people to geographic communities like cities and countries (Bleidorn et al., 2016; Fulmer et al., 2010). In terms of psychological characteristics, researchers have studied the match of skills, values, goals, and personality traits. Differing effects are found for perceived/subjective fit—asking participants explicitly whether their environment is a good match for them—and actual/objective fit—the association between an individual's characteristics and characteristics of the broader environment (Kristof, 1996). In studies of the latter, the environment characteristics can be operationalized by the aggregate characteristics of the individuals in that environment (Holland, 1997). For example, the extraversion of a particular city is equal to the average extraversion of its residents (e.g., Bleidorn et al., 2016).

Regardless of the study methods, high levels of PE-fit have been uniformly associated with positive outcomes. For example, people who match their country's extraversion levels report greater well-being (Fulmer et al., 2010), and matching one's city-level openness, agreeableness, and conscientiousness is associated with higher self-esteem (Bleidorn et al., 2016). Adolescents who report more belongingness (subjective fit) with their schools have fewer behavioral and emotional problems (Georgiades et al., 2013). Similarly, college students who fit with their university report higher levels of self-esteem (Roberts & Robins, 2004) and more satisfaction with their institution (Gilbreath et al., 2011; Harms et al., 2006). Notably, these students also tend to have more academic success (Harms et al., 2006). Similarly, employees who have better PE-fit with their jobs—that is, their personalities better match the ideal characteristics of the job, as rated by experts—earn larger incomes (Denissen et al., 2018).

There is less work to date linking PE-fit to physical health outcomes. One study of Polish workers found associations between PE-fit and a global measure of subjective health status and mental health (anxiety, social dysfunction, and depression; Merecz & Andysz, 2012). More recently, social identification with a workplace was positively associated with physical functioning (Steffens et al., 2017). Studies of *cultural consonance*—the degree to which an individual's behavior approximates a widely shared cultural model (Dressler, 2012)—suggest that subjective PE-fit on values is associated with healthier blood pressure (Dressler et al., 2005). Similarly, religiosity PE-fit is linked to longevity (Stavrova, 2015). However, less is known about personality-specific PE-fit and physical health.

A vast majority of PE-fit research, including the work summarized above, equates PE-fit with *supplementary congruence*, or the match between a person and their environment. Industrial and organizational psychologists may investigate supplementary fit at different levels, such as the match between the person and the characteristics of the job (person-vocation fit), between the person and the characteristics of the organization in which they work (person-organization fit) or between the person and the specific group of people they work closely with (person-group fit), such as a department or team (Kristof, 1996). However, a second type of fit, *complementary congruence*, relates to the match between the person and the needs of the environment. Complementary fit may refer to occasions when an individual's strengths offset the weaknesses of their environment, or it may refer to occasions in which an environment rewards (rather than matches) the individual's strengths (Edwards, 1991; Muchinsky & Monahan, 1987). Within personality psychology, supplementary and complementary fit have been directly assessed, such as by asking participants to what extent situations met their needs or posed demands (Rauthmann, 2013). Other work suggests complementary fit may be assessed by scatter, or the degree to which an individual's profile is more varied than that of the average person in their environment (Götz et al., 2018), although this hypothesis is largely speculative and has yet to be tested. Importantly, supplementary and complementary are related, though independent, processes. Work integrating the two has shown PE-fit and satisfaction are not linearly related, but rather follow parabolic (an optimal middle amount) or asymptotic (diminishing returns) trends (Cable & Edwards, 2004). This is consistent with a theory suggesting that we should both match and complement our environments to some degree (Muchinsky & Monahan, 1987). In other words, perfect (matching) fit may undermine one's motivation or efforts to improve or change, thus leading to complacency (Van Vianen, 2018). We may then anticipate that individuals experience the highest well-being at average levels of PE-fit, rather than extremely low or extremely high.

Selection and Socialization

Two processes have been identified as the primary causes of high PE-fit: selection and socialization. *Selection* refers to the idea that one's characteristics causally influence one's choice of career and residential geography (Jokela, 2009; Jokela et al., 2008; Schneider, 1987), often through attraction (being interested in specific careers) and attrition (leaving environments to which one is not well-suited). Selection provides theoretical support for the study of vocational interests (Holland, 1997) and is also influential in the association of personality traits with jobs (Wille et al., 2012).

The second process leading to PE-fit is *socialization*, which broadly refers to the process by which environments mold and shape individual behavior (Van Maanen & Schein, 1977), though this may also include agentic adaptations in behavior undertaken by individuals in response to features of their environments (Pratt & Ashforth, 2003). Examples of socialization include the findings that employees' values become more aligned with their organizations' values over time (De Cooman et al., 2009) and that students' life

goals are changed after selecting a college major (Hill et al., 2016). When jobs have higher demands on time, workers become more conscientious and less neurotic; similarly, when jobs give workers more control, they become less agreeable and more open (Wu, 2016). As noted above, selection and socialization may also work in tandem. For example, selection processes are evident for many careers (e.g., individuals low on conscientiousness may be less likely to seek or be offered jobs with more demanding schedules), but similar changes in personality are often observed after controlling for selection effects on vocational choice (Wille & De Fruyt, 2014).

Together, the processes of selection and socialization lead to corresponsive person–environment relationships: that is, people select environments because of their traits, which are then reinforced by those same environments (B. W. Roberts et al., 2003; Shanahan, Bauldry, et al., 2014). For example, high school students with better Scholastic Aptitude Test scores and higher grade point averages experienced better PE-fit in college (Roberts & Robins, 2004), and PE-fit in college is associated with better academic success in college (Harms et al., 2006). Considering person-geography fit, individuals higher in openness and extraversion and lower in agreeableness are more likely to move (Jokela, 2009; Jokela et al., 2008), and it is these same traits for which high PE-fit is associated with better outcomes (Bleidorn et al., 2016; Denissen et al., 2018).

Parallels in Immigration

Selection and socialization are the processes that lead to PE-fit; similar processes are documented in the immigration literature. As this literature (across disciplines) is quite large, we focus only on the research that most directly informs the current work on personality. While people choose to leave their home countries for a variety of reasons—and this experience is distinguished from the experience of being forced to leave—there are some psychological qualities that predispose people to immigrate (Boneva & Frieze, 2001). Of note is the trait openness to experience. For example, within the United States, people are more likely to migrate to different cities or states if they are high on openness (Jokela, 2009). Lithuanian students high in openness also report greater intentions of migrating (Paulauskaitė et al., 2010), and British managers high in openness were more likely to have worked abroad (Furnham, 2017). Just as personality traits may lead individuals to select specific careers, personality may lead individuals to migrate. Importantly, we may expect to see associations not just with the behavior of migration but with the choice of eventual location. For example, an anthropologically oriented review of geographical differences in personality traits suggested that present-day differences in traits resulted in part from prehistoric population migrations (Olson, 2007). This is consistent with more contemporary migration patterns, such as the connection between trait independence and the settlement of frontier lands in Japan (Kitayama et al., 2006).

Like socialization, *acculturation* is the processes by which an individual changes, psychologically, as a result of their environment, more specifically in this case, because of contact with another cultural group (Berry, 2005), although acculturation can often include forms of mutual accommodation[1] between persons of different cultural groups. Within the framework of personality traits, we can consider acculturation to describe the processes by which an immigrant's traits change (or remain stable) after resettling in a new country and the degree to which their traits become more or less like the traits of those around them (e.g., Güngör et al., 2013). It is important to note that four strategies of acculturation have been identified—integration, assimilation, separation, and marginalization—and that each of these can be defined by both the degree of orientation toward one's culture of origin and the degree of orientation to the host culture(s) (Berry, 2005). Integration and assimilation both represent interaction with the host culture; they are distinguished by the degree to which they maintain (integration) or reject (assimilation) one's culture of origin. While integration is generally associated with positive mental health, assimilation, by contrast, is associated with more depressive symptoms (Berry et al., 2006; Choy et al., 2021). Importantly, assimilation and integration can be conflated with some methodologies. For example, some studies measure time spent in the host culture (e.g., McCrae et al., 1998), but the study of integration and assimilation should capture feelings of closeness (or lack of) with the host culture. To further confuse the matter, researchers across disciplines sometimes use the terms "acculturation" and "assimilation" interchangeably.[2] This is problematic because it reflects a zero-sum view of acculturation. The other two strategies of acculturation—separation and marginalization—both include rejection of the host culture and are distinguished by maintaining (separation) or rejecting (marginalization) one's culture of origin.

Prior work has linked integration/assimilation to change in a large number of psychological characteristics (M. Fox et al., 2017). Focusing here only on personality traits, Canadians of Chinese heritage were more similar to Chinese immigrants who moved to Canada 10 years before the study than to Chinese immigrants who moved more recently (McCrae et al., 1998). In other words, the longer a Chinese immigrant lived in Canada, the more similar they were to people who were born in Canada. A separate study of Japanese women immigrants found that their Big Five scores were more similar to U.S. natives (nonimmigrants) and more dissimilar to Japanese natives if the immigrants were more involved in U.S. culture (Güngör et al., 2013). Relatedly, Eap et al. (2008) found that the similarity of personality structure between Asian American and European American men was directly related to the integration/assimilation of Asian American men. All three studies point to the same conclusion: the personalities of immigrants are more like the personalities of natives when immigrants are more integrated/assimilated.

Immigrant PE-Fit

Given the notable parallels between the processes leading to PE-fit and known processes of selection and acculturation among U.S. immigrants, a natural question is: Do immigrants benefit from fitting their new environments? PE-fit appears to have uniformly

[1] As noted by Berry (2005), accommodation can include the adoption of language, food, dress, and other cultural characteristics of groups. One example of accommodation is the adoption of more Spanish-language news programming by the National Public Radio to serve the large number of Spanish-speaking immigrants and residents of the United States.

[2] Within this literature review, we will use this combined label, "integration/assimilation," when referring to studies that measure time spent in or identification with a host culture without measure of identification of heritage culture, regardless of the label used by the authors of cited works. This is because such studies cannot distinguish between these two strategies, and we hope to highlight that results may be drive by either or both integration and assimilation.

positive effects in the education, career, and personality literatures, but it is unclear whether this would be the case for immigrants. One reason to expect that PE-fit would benefit immigrants is the finding that integration/assimilation is linked to positive outcomes. For example, feelings of belongingness among immigrants are associated with better mental health (Georgiades et al., 2013), suggesting likely benefits of PE-fit. Studies of multiculturalism—the experience of having been exposed to two or more cultures (Nguyen & Benet-Martínez, 2007)—are especially relevant for understanding the psychological experience of immigrants. Multicultural identities involve identification with both the culture of origin and the dominant culture of their present home (Berry, 2003). Those with integration, or strong high identification with both cultures tend to experience the highest psychological and sociocultural well-being (Choy et al., 2021; Nguyen & Benet-Martínez, 2013). Recent work on the emotion fit of Korean and Turkish immigrants found that greater fit to average host country emotion patterns was associated with more time spent in the host country culture (Leersnyder et al., 2011, 2020). This work provides support for the hypothesis that immigrants with greater orientation toward the host culture, regardless of their orientation to the ethnic culture, will have higher levels of PE-fit.

However, high levels of PE-fit between immigrants and host cultures may also result from assimilation (i.e., low orientation toward one's culture of origin and high identification with the host culture), which tends to be associated with negative outcomes (Choy et al., 2021). In other words, the relationship of PE-fit to outcomes may depend in part on the process driving increases in fit: PE-fit due to biculturalism/integration should be associated with improved mental and physical health, whereas PE-fit due to assimilation would be associated with worse health. Statistically, this process would lead to a misfit in the model, evidenced by heterogeneity in the residuals across levels of the predictor. Thus, we may expect more heterogeneity in well-being at high levels of PE-fit, reflecting both immigrants who retain convergence with their native culture and those who do not. Additionally, the literature on complementary and supplementary fit suggests that a perfect match between individuals and environments is not optimal, as it limits motivation for improvement. This would manifest as curvilinear effects (e.g., parabolic relationships), for which we also test.

A second important question is where PE-fit comes from in this population. Before answering, we note that migration may occur because someone is being "pulled" to a new host country (e.g., seeking better fit, new opportunities) or because they are being "pushed" from their origin country (e.g., fleeing from famine, economic instability, natural disasters, or persecution; Richmond, 1993). Some individual characteristics may be associated with such reasons. Country of origin, for example, is likely associated with such push-or-pull factors. For example, we might expect immigrants arriving from countries producing larger shares of refugees (e.g., Democratic Republic of Congo, Burma, and Ukraine; United States Department of State et al., 2021) to be motivated to immigrate due to push factors, rather than pull (similar to the attrition/attraction dichotomy in the PE-fit literature). If we assume immigrants from these countries prioritize resettling away from their country of origin rather than maximizing cultural fit in their new home, we may expect these immigrants to have a lower PE-fit.

In terms of pull to new locations, individuals with more economic resources (i.e., higher socioeconomic status) would be more able to identify and move to locations that better match their personalities. Conversely, adolescents (who typically immigrate with their families) have substantially less agency than their adult counterparts and may experience less fit as a result. Given that openness is associated with migration (e.g., Furnham, 2017; Jokela, 2009; Paulauskaitė et al., 2010), we also hypothesize that openness to experience is associated with higher PE-fit. Relatedly, individuals high in openness and conscientiousness tend to have higher levels of education (Franchow et al., 2013; Hampson et al., 2007) and thus income (Roberts et al., 2011), which we expect to facilitate PE-fit. We will assess the relationship of PE-fit to both personality and education, as this will help to identify potential confounds.

In addition to being influenced by psychological differences, PE-fit may also differ as a function of one's culture or country of origin. Prior work suggests that greater identification with host cultures has mixed effects on health and well-being (S.-K. Lee et al., 2000; Tsabari et al., 2005), likely due in part to conflation of assimilation and integration and other related measurement issues (M. Fox et al., 2017). Similarly, in the workplace, PE-fit has been hypothesized to be more important in individualistic cultures than collectivist ones (Y. Lee et al., 2010) because, in the former, people may more selectively affiliate with others based on similarity in terms of personality and values. This is supported by the finding that personality-similarity is more strongly associated with peer integration in individualistic, compared to collectivist, cultures (Schaubroeck & Lam, 2002) Finally, there is also work suggesting that PE-fit may be more important for younger adults (Tsabari et al., 2005), but this is rooted in satisfaction with careers and may not extend to a migration context.

A third question is whether PE-fit is not only a function of the person but also the environment. For example, immigrants living in communities with more immigrants may experience greater PE-fit because of shared experiences or culture. Relatedly, students who attend schools with more peers sharing their generational status and ethnicity have fewer emotional problems, and this association is partially accounted for by belongingness (Georgiades et al., 2013). Similarly, social networks among Mexican immigrants are associated with lower rates of depression (Vega et al., 1991). In other words, some evidence that belongingness or PE-fit is achieved by moving to a community with other similar immigrants.

The Present Study and Methodological Considerations

The present study is designed to address the broad theoretical questions posed above: (1) How well do U.S. immigrants fit their new host communities and how does this compare to the fit of U.S. natives? (2) Which characteristics of immigrants are most strongly associated with high levels of PE-fit? (3) Which characteristics of communities are most strongly associated with high levels of PE-fit? And (4) To what extent is PE-fit of immigrants associated with well-being and health? These questions are relevant for a broad group of researchers (e.g., psychologists, sociologists, epidemiologists) and professionals (e.g., policymakers, advocates, activists) interested in studying and supporting the quality of life of immigrants. In addition, this work can more broadly contribute to the theoretical understanding of personality-based PE-fit, including identifying the individual and environmental factors that contribute to PE-fit beyond those associated with specific personality traits. For this work, we conceptualize the person in terms of their profile of personality

trait items. This choice allows us to situate our work within a body of trait-psychology literature, although we will limit ourselves to only a subset of attributes widely assessed (see Method, for more details).

An important consideration in the study of acculturation is defining the geographic scope of the host community. National averages may poorly represent the culture to which an immigrant is exposed, especially in highly diverse receiving countries. The United States is a prominent example, as it is geographically large and contains people with a diversity of racial, ethnic, religious, and cultural backgrounds. This diversity is reflected in psychological diversity, such as variation in personality traits across states (Elleman et al., 2018; Rentfrow et al., 2013), cities (Bleidorn et al., 2016), and counties (Ebert et al., 2022; Obschonka et al., 2020). In other words, it may be insufficient to compare the personalities of immigrants to a national average, which would poorly represent both the native population and the experience of immigrants' fit.

Narrower geographic regions, like zip codes, better capture how personality profiles cluster than states or regions (Elleman et al., 2020). This should be unsurprising, as there is substantive evidence that people shape their more immediate community and vice versa. Given the nature of local politics, smaller areas (cities and neighborhoods) can differ dramatically within states along policy lines, which have immediate and strong impacts on the daily lives of citizens. Moreover, one's city and neighborhood of residence is not random: many choose to live in specific cities due to work and family, and within cities, in specific neighborhoods that best fit their values (e.g., quality of schooling, availability of arts and entertainment, etc.) and finances. Thus, cities and neighborhoods differ within states along psychological lines. For example, population density is associated with political identity and voting behavior (Morrill et al., 2007; Seyle & Newman, 2006), education, income, and occupational skills (Bacolod et al., 2009; Glaeser & Mare, 2001), and personality (Jokela, 2014; Jokela et al., 2015). Similarly, personality traits of a region appear to vary as function of geographic topography (Götz et al., 2020). In other words, a Californian living on the beaches of Santa Monica is likely to differ from the Californian living near the Sierra Nevada Mountain range. Indeed, work by Ebert et al. (2022) sought to evaluate the distribution of personality characteristics across the United States without constraining boundaries. They find that, while some states appear homogenous in their levels of personality characteristics, many states (including some especially populous states like Texas and California) have substantial heterogeneity across smaller regions. This suggest that aggregating personality to a state or even region level may miss important personality differences within these boundaries. Importantly, a resident of a state may feel a subjective kinship with other residents of their state, perhaps more so than their neighborhood. However, when assessing PE-fit through objective measures—such as by calculating the personality of the average community resident (Holland, 1997)—this subjective affiliation is not relevant. This suggests that the assessment of immigrant PE-fit would benefit from consideration of small geographic regions. We measured immigrants' fits to their zip code tabulation area (ZCTA). This is the narrowest geography at which we can identify where a person lives while still extracting relevant data on the community from the U.S. census.

A second methodological consideration is the analytic technique used to quantify and study PE-fit. Studies that assess the similarity of a person to another entity (e.g., another person, a norm, a group average, etc.) can employ a variety of methods. Response surface analysis (RSA) models the relationship between the individual and other entity against an outcome, rendering both a three-dimensional visual of fit and several summary statistics to evaluate fit. RSA is prominent as of late (e.g., Bleidorn et al., 2016; Denissen et al., 2018; Gilbreath et al., 2011) and comes with a variety of benefits, including its intuitive interpretation and flexibility to answer questions about similarity and complementary congruence (Barranti et al., 2017). However, RSA has been critiqued for misconceptions and researchers' tendencies to oversimplify the results from this method (Humberg et al., 2019). More relevant to the current project, RSA is currently limited to analyses that have an outcome, so it cannot be used to descriptively quantify fit within a sample. RSA also has limited capacity to incorporate categorical outcomes, so there is no opportunity to address questions like, "How does country of origin relate to fit?" Moreover, a major assumption of RSA is measurement invariance. In the case of the present study, RSA analyses would require the assumption of invariance across groups defined by country of origin, in addition to the groups defined by other categorical variables of interest (see Method section). Given the proliferation of work suggesting that the Big Five structure poorly represents non-Western cultures (Church et al., 1997; Cutler & Condon, 2023; De Raad et al., 2010; Laajaj et al., 2019; Laher & Dockrat, 2019; Ludeke & Larsen, 2017; Thalmayer & Saucier, 2014) and also may not represent adults after midlife (Beck et al., 2023), this assumption may be untenable when comparing individuals from different cultures or countries or across age groups. We are especially cautious against using such a measure when we have planned analyses that include comparisons of fit across country of origin: differences in fit along Big Five traits may not reflect true differences but simply differences in measurement.

Profile-based analysis, on the other hand, provides an opportunity to quantify fit without assuming measurement invariance. Such analyses compare an individual's entire profile—measured at either a trait or item level—to the profile of the other entity (Carlson & Furr, 2009; Götz et al., 2018; Miramontez et al., 2008; Roberts & Robins, 2004; Schultz, 2016). This can be accomplished using either correlations or within a multilevel model framework, and within the latter, moderators can test the relationship of fit to either outcomes or predictors of interest (Barranti et al., 2017), including categorical variables. Profile analysis further allows for the estimation and partialling out of normativeness (Wood & Furr, 2016) and is not subject to confounds or noise due to individual differences in response style (Götz et al., 2018; Leersnyder et al., 2011, 2020).

Method

Participants and Data Collection

Data were collected via Synthetic Aperture for Personality Assessment-Project.org (Condon et al., 2017), an online, noncommercial personality assessment website. All participants voluntarily provided information in return for feedback concerning their personality. They could answer as many questions as they chose, from 25 to 250 personality questions; more feedback was given to participants who answered more questions. Responding was optional for all items except age, gender, and a question asking whether participants had previously completed the survey. This data collection protocol was reviewed by the (University of Oregon)

Institutional Review Board. All methods were carried out in accordance with guidelines and regulations.

The data used for this study include participants who visited the website from February 7, 2017 through August 18, 2023 (the date of Stage 1 acceptance). Participants were included in these analyses if they report their country of origin, reported their zip code, spoke English either "well" or "very well—fluent,"[3] and completed at least 50 personality items, which allows for more precise estimates of fit. Next, we only retained participants from zip codes with at least 30 participants. We also excluded participants reporting a zip code of 90,210, as there tend to be more reports of this zip code than expected and were thus suspected of being fraudulent. Participants were labeled as immigrants if their country of origin was not the United States and U.S. natives otherwise. The sample of immigrants is used in all analyses; they are compared to the sample of U.S. natives for Research Question 1 (see below). For descriptive statistics of this sample, see Table 1. In total, the data for this study include 39,195 immigrants from 2,081 ZCTAs, as well as 122,339 U.S. natives from 2,374 ZCTAs. Just under half the sample of immigrants (18,558 or 47.3%) live in ZCTAs with a population density of 3,000 people per square mile, which is considered the threshold for an urban area. A similar proportion of ZCTAs (1,044 or 44.0%) represented in these data are urban areas.

Table 1
Descriptive Statistics for Sample Used Throughout the Study

Variable (category)	Immigrant	U.S. Native
Age		
13–17	7,311 (18.65%)	17,174 (14.04%)
18–25	16,893 (43.10%)	37,739 (30.85%)
26–35	7,358 (18.77%)	21,645 (17.69%)
36–45	3,698 (9.43%)	15,364 (12.56%)
46–55	2,289 (5.84%)	13,123 (10.73%)
56–65	1,102 (2.81%)	10,935 (8.94%)
66+	544 (1.39%)	6,359 (5.20%)
Education		
Less than 12 years	3,275 (8.36%)	13,825 (11.30%)
High school graduate	5,622 (14.34%)	8,676 (7.09%)
Some college	1,837 (4.69%)	9,966 (8.15%)
Currently in university	9,521 (24.29%)	26,292 (21.49%)
Associate degree	1,036 (2.64%)	5,415 (4.43%)
College degree	6,825 (17.41%)	23,983 (19.60%)
In graduate or professional school	1,673 (4.27%)	4,720 (3.86%)
Graduate or professional degree	6,462 (16.49%)	23,359 (19.09%)
Missing	2,944 (7.51%)	6,103 (4.99%)
Parent education		
Less than 12 years	5,727 (14.61%)	12,684 (10.37%)
High school graduate	8,428 (21.50%)	27,374 (22.38%)
Some college	3,815 (9.73%)	22,966 (18.77%)
Currently in university	726 (1.85%)	553 (0.45%)
Associate degree	701 (1.79%)	2,325 (1.90%)
College degree	5,951 (15.18%)	18,211 (14.89%)
In graduate or professional school	473 (1.21%)	1,003 (0.82%)
Graduate or professional degree	7,065 (18.03%)	26,596 (21.74%)
Missing	6,309 (16.10%)	10,627 (8.69%)
Region		
Africa	6,121 (15.62%)	
East Asia	1,323 (3.38%)	
Europe	4,721 (12.04%)	
Middle East	1,841 (4.70%)	
North America	1,529 (3.90%)	122,339 (100.00%)
Oceania	633 (1.62%)	
South and Central America	6,785 (17.31%)	
South/Southeast Asia	16,235 (41.42%)	
Missing	7 (0.02%)	
Sex		
Female	26,071 (66.52%)	80,768 (66.02%)
Male	12,558 (32.04%)	40,427 (33.05%)
Other	172 (0.44%)	288 (0.24%)
Missing	394 (1.01%)	856 (0.70%)

Measures

Personality

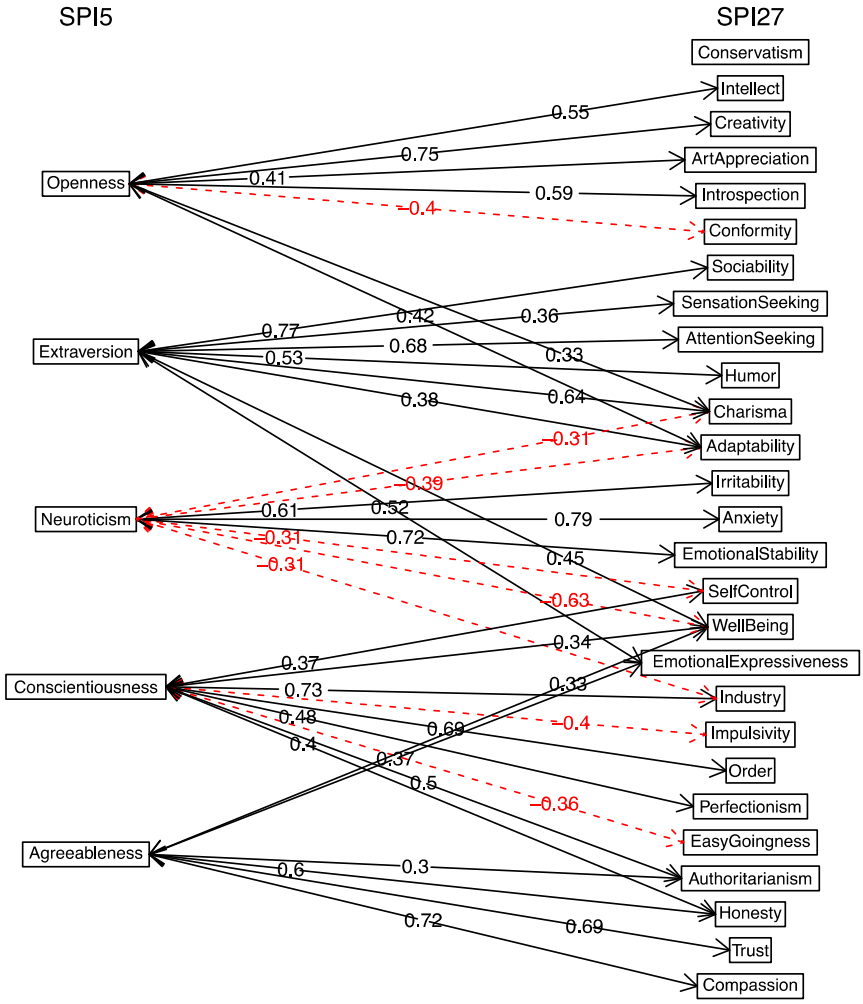
All 135 items from the Synthetic Aperture for Personality Assessment Personality Inventory (SPI; Condon, 2017) were presented to participants among the 250 personality questions. The SPI is a fully empirically derived (i.e., from the bottom-up) assessment of personality traits, developed using three large international samples. The full measure can be used to score 27 narrow, unidimensional traits (Compassion, Irritability, Sociability, Well-Being, Sensation-Seeking, Anxiety, Honesty, Industry, Intellect, Creativity, Impulsivity, Attention-Seeking, Order, Authoritarianism, Charisma, Trust, Humor, Emotional Expressiveness, Art Appreciation, Introspection, Perfectionism, Self-Control, Conformity, Adaptability, Easy-Goingness, Emotional Stability, and Conservatism). Item-response theory (IRT) parameters have been developed to score these narrow traits. In addition, 70 of the 135 items can be scored into traits that correspond with similar five-dimensional models like the Big Five (Goldberg, 1993) and NEO (Costa & McCrae, 1989). Importantly, the SPI is not a hierarchical measure of personality: That is, narrow factors are not derived from broad factors and so are not facets of these broad traits. Instead, many narrow traits are interstitial (see Figure 1). For all items, participants were asked to rate how accurately the item describes them on a scale from 1 (*very inaccurate*) to 6 (*very accurate*).

For the primary analysis, we adopted a method developed in the PE-fit literature in which PE-fit is conceptualized as the person-level correlation between ratings of the self and the average ratings of others in the environment (Holland, 1997). With this method, we compared each participant profile to their Zip Code Tabulation Area (ZCTA) personality profile. The *participant personality profile* is simply the participants' response to each item in the SPI (up to 130 items). We note here that we used all items except for those which can be scored on the Well-Being scale, because these are used as an outcome in subsequent analyses. We ipsatized responses within participant to remove issues of response style (e.g., yay-saying or restricted range of responding). In our case, this also has the benefit of generating standardized coefficient estimates, similar to correlation coefficients, in our final models. Notably, this does not change the relative ranking of traits within a person but does affect a person's standing on each trait compared to others. This allowed us to estimate the influence of fit, rather than raw trait levels, on

[3] In exploratory analyses, we will test whether fit is predicted by English proficiency, using the 4-point ordinal scale with options *not at all (need translation)*, *not well*, *well*, and *very well—fluent*. However, we will be unable to distinguish poor fit due to poor psychological fit and due to misinterpretation of the English items, which is why these analyses are separated from the main study and reported only as a footnote.

Figure 1

Correlations Between Broad and Narrow Traits Measured by the SPI



Note. From *The SAPA Personality Inventory: An Empirically Derived, Hierarchically Organized Self-Report Personality Assessment Model*, by D. M. Condon, 2017, PsyArXiv (https://doi.org/10.31234/osf.io/sc4p9). CC0 1.0 Universal. Reprinted with permission. SPI = SAPA Personality Inventory; SAPA = Synthetic Aperture for Personality Assessment. See the online article for the color version of this figure.

outcomes in subsequent analyses. *ZCTA personality profile* is the average response to each item by participants who live in that ZCTA. Again, we ipsatized average responses within ZCTA for the same reasons we ipsatized above. PE-fit is thus the standardized relationship between the participant profile and the ZCTA profile. Because of the reliance on items, rather than factors, we did not make assumptions about the nature of the factor structure, which may not replicate well across cultures (De Raad et al., 2010). Moreover, a participant's PE-fit score does not necessarily depend on their trait scores. This will allow us to test the relationship between trait scores and PE-fit in subsequent analyses. Finally, we also calculated the *normative profile*, which is the average response to items across the entire sample (here, we use both immigrants and U.S. natives). This profile became a covariate in subsequent models (see Analyses subsection).

The SPI measure was designed such that it can be scored at both a narrow (27-factor) or broad (five-factor) level, the latter of which corresponds to the five broad traits commonly assessed using other measurement tools (e.g., Soto & John, 2016). We calculated both sets of scores. For the broad-level traits, we used a sum/mean score approach in which participant's responses to items are averaged to create a single trait score. Broad traits have shown high reliability, with α ranging from .81 (*Openness*) to .90 (*Extraversion*). For the narrow level, we used an IRT scoring approach because the narrow SPI traits are unidimensional. IRT parameters for difficulty and discrimination were estimated during the development of the SPI from an international sample of more than 125,000 participants (see Condon, 2017, for details). Reliability estimates for IRT-scored scales are best described using test information curves, which are reported in Supplemental Material.

Physical Health

Participant *self-reported health* was reported on a 5-point scale from 1 (*poor*) to 5 (*excellent*). In other studies, this item is strongly correlated ($r = .80$) with longer measures of self-rated health and performs on-par with longer measures in predicting physical functioning, chronic conditions, and symptomology (Hays et al., 2017).

Mental Health

We used the five items of the SPI Well-being scale to assess immigrant *well-being*. Participants also reported their current *stress levels* on a scale from 1 (*extremely calm*) to 5 (*extremely stressed*). A subset of the participants ($N = 7{,}121$) completed (at least some) items from the *Psychological Well-Being* (Ryff & Keyes, 1995) scales. In our preregistration, we said that we would use these scales in the assessment of well-being if the effective sample size based on item-pairwise administrations for these items is adequate to support item response theory-based scale scoring ($N = 300$; Comrey & Lee, 2013; DeVellis & Thorpe, 2021; Kyriazos, 2018). The average number of pairwise administration of items was only 22.32 (min = 4, max = 302). Therefore, most analyses using the Ryff measure will be included in the Supplemental Material, but not reported in the main text.

Participant Characteristics

We grouped participants into six *age* categories: 13–17, 18–25, 26–35, 36–45, 46–55, 56–65, and 66+. Participants were prompted to self-report their *educational attainment* level, as well as that of up to two parent(s)/guardian(s). We identified the highest degree earned across the parents for a *parental education* measure. We grouped participants into *geographic region* according to the country[4] they were born in. Generally, we grouped countries by continent, although we distinguish East Asia from South and Southeast Asia, and we also distinguished countries in the Middle East. See the Supplemental Materials for lists of which countries were assigned to which regions. We also created groups for *official language* of the country of origin. In cases where there are multiple official languages, countries were assigned to the group representing the language most used across countries as an official language. For example, Canada has both English and French as official languages, and Canada will be assigned to the "English" official language group because English is the more common official language.

ZCTA Characteristics

Participant's ZCTAs (zip code tabulation areas) were identified using their self-reported zip code. ZCTA characteristics came from the U.S. Census Bureau (American Community Survey 5-Year Estimates Data Profiles from 2019), and we tested whether these characteristics predict higher levels of immigrant PE-fit (see Analyses). These characteristics include the *geographic region* of the ZCTA (mid-Atlantic, Midwest, New United Kingdom, Pacific Coastal region, Rock Mountains, Southeast, or Southwests), the proportion of the population who have a *college degree*, and the proportion of the population born *outside the United States*. Of particular interest is indexing the degree to which the ZCTA is home to persons of shared identity or culture to the immigrant. U.S. Census data provide three imperfect measures of resident origin or ancestry. We used all three in these analyses. First, we extracted the proportion of foreign-born residents from each continent (Europe, Asia, Africa, Oceania [Australia and the South Pacific], Latin America, and North America). North America included both Mexico and Canada. These data were matched to each participant's country of origin such that we identified the *proportion of residents who arrived from the same continent* as the participant. Second, census data include the proportion of foreign-born residents who originated in each of a subset of countries: China (including Hong Kong and Taiwan), Cuba, Dominican Republic, El Salvador, Guatemala, India, Mexico, the Philippines, Vietnam, and all other countries. We used this to identify the *proportion of residents from the same country* as the immigrant. Finally, census data includes the proportion of all residents (not only foreign-born) who have each of the following ancestry: Arab, Czech, Danish, Dutch, English, French, French Canadian, German, Greek, Hungarian, Irish, Norwegian, Polish, Scotch-Irish, Scottish, Slovakian, Swedish, Swiss, sub-Saharan African, Welsh, West Indian (excluding Hispanic/Latino ancestry), and Ukrainian. In some cases, ancestries were aggregated (e.g., Scottish, English, Irish, Welsh, and Scotch-Irish all correspond to Great Britain as the country of origin), and in other cases, ancestries captured a wide range of countries (Arab) or overlapping countries (Arab and sub-Saharan African). Our attached code documents how we assigned country of origin or ancestry to facilitate the creation of a *proportion of residents with shared ancestry* variable.

Analyses

RQ1: Quantifying Immigrant Fit

A common method for estimating person-environment is to correlate each participant's profile with the average profile of their environment (Holland, 1997; Schultz, 2016). However, this method performs poorly when participants have differing numbers of responses, such as in the current data set. In the present study, we included participants who completed between 50 and 130 items. Therefore, estimates of PE-fit were weighted as a function of how much information was used to generate that estimate.

To address both issues, we modeled PE-fit using a hierarchical linear model, which both regularizes estimates of PE-fit at the person-level (thus addressing the issue of variance) and weighting more strongly those estimates based on greater amounts of data. The basic model for PE-fit is as follows (Equations 1–6):

$$\text{Self rating}_{ipz} = \beta_{0pz} + \beta_{1pz}(\text{ZCTA average})_{ipz} + \beta_2(\text{normative})_i + R_{ipz}, \quad (1)$$

$$\beta_{0pz} = \mu_{00z}, \quad (2)$$

$$\beta_{1pz} = \mu_{10z} + U_{1pz}, \quad (3)$$

$$\beta_2 = \mu_{20}, \quad (4)$$

[4] In exploratory analysis, we will also identify the countries with the highest and lowest fit. These analyses will be restricted to countries with at least 50 immigrant participants in the sample. However, we expect these results to be somewhat imprecise, given expected low sample sizes for most countries, which is why they will be reported in footnotes/Supplemental Material and not the primary study.

$$\mu_{00z} = \gamma_{00}, \quad (5)$$

$$\mu_{10z} = \gamma_{10} + V_{1z}. \quad (6)$$

Items, i, were nested within participants, p. The first line of the equation represents the item-level formula in the model, which regresses each participant's self-rating on an item onto the average rating of everyone in their resident ZCTA and onto the normative profile. Item responses were nested within participants. We allowed the slopes representing concordance with the ZCTA average to vary, while the normative slope was fixed. The normative values were included to control for normativity or social desirability (Wood & Furr, 2016).[5] Thus, for each participant, one intercept and one slope was estimated, shown in Lines 2 and 3. Participants were nested within ZCTAs, z, making this a three-level model. Models were estimated in R (version upon submission is 4.2.3; R Core Team, 2022) using the lme4 package (Bates et al., 2015).

Prior to the model estimation, responses were standardized within participant. This is true for both self-report responses and ZCTA-averages. As a result, person-level intercepts were always 0—thus, they can be fixed with no loss of information. Moreover, slope estimates were in standardized units and approximate correlations. Note that R_{ipz} (the individual variability at the item level), U_{1pz} (the variability of slopes at the person level), and V_{1z} (the variability of slopes at the ZCTA level) were all normally distributed with a mean of 0 and freely estimated standard deviations.

This model was additionally be modified through the inclusion of moderators of the slope coefficient, either at the person level or the ZCTA level to test research questions of interest. More specifically—combining our immigrant and U.S. native samples—we moderated person-level slopes by status (immigrant or U.S. native) to test whether immigrants have lower PE-fit compared to U.S. natives. While we did not make specific hypotheses about the expected difference between immigrants and U.S. natives, the disparate sample sizes between these groups are likely to yield the finding that U.S. natives experience better PE-fit. However, we believe it is important to test this difference for the following reasons: First, we are unaware of any study that has empirically demonstrated this difference, and—while common sense—future work will benefit from an empirical starting point to build from. Second, the size of the difference is equally, if not more, important than the mere presence of difference. Third, one could theorize that immigrants have (in at least some cases) higher PE-fit than natives because immigrants necessarily move from one location to another. Prior work on migration suggests that people tend to move to locations where they have higher PE-fit (Jokela, 2009; Jokela et al., 2008); therefore, immigrants may experience better PE-fit because they have all migrated, whereas only a subset of the U.S. native population has migrated (within the United States).

RQ2: What Person-Characteristics Are Associated With PE-Fit?

Using just the immigrant sample, we moderated the person-level slopes by age, education, parent education, region of the home country, and personality traits (five broad and 26 narrow) to test whether characteristics of immigrants predict a better fit. The significance of categorical moderators was tested using an analysis of variance (Type III sums of squares) with degrees of freedom estimated using Satterthwaite's method. Estimation of simple slopes was performed with the emmeans package (Lenth, 2021) and sums of squares were estimated using the car package (J. Fox & Weisberg, 2019). We note here that a major theoretical predictor of fit would be the length of residence in the United States, a variable to which we do not have access.

RQ3: What ZCTA Characteristics Are Associated With PE-Fit?

We moderated ZCTA level slopes by the ZCTA characteristics above (proportion with college degrees, proportion foreign-born, the proportion of residents from the home continent, the proportion of residents from the home country, and the proportion of residents with shared ancestry) to determine whether high PE-fit is better achieved in some locations than others. Again, we tested the significance of categorical moderators will be tested using analysis of variance (Type III sums of squares) with degrees of freedom estimated using Satterthwaite's method.

RQ4: Does PE-Fit Predict Health and Well-Being?

Finally, we evaluated the potential effects of PE-fit on quality of life. For these analyses, we extracted the PE-fit slope estimates from the initial model (with no moderators). These become predictors in subsequent models. Extraction of the slopes allowed for us to fit nonlinear relationships in our models and interpret the models with some ease. We retained the dependency between individuals residing in the same ZCTA, but it was no longer necessary to model dependency at the level of the participant. For example, our model testing the relationship between PE-fit and well-being was as follows (Equations 7–10):

$$\text{Well-being}_{iz} = \gamma_{0z} + \gamma_{1z}(\text{PE fit})_{iz} + \gamma_{2z}(\text{PE fit})^2_{iz} + R_{iz}, \quad (7)$$

$$\mu_{0z} = \gamma_{00} + V_{1z}, \quad (8)$$

$$\mu_{1z} = \gamma_{10}, \quad (9)$$

$$\mu_{2z} = \gamma_{20}. \quad (10)$$

Note that these models include varying intercepts but not varying slopes, a departure from the previous models. This is because the PE-fit slopes were no longer estimated in this model, having been extracted from previous analyses. In Equation 2, we included an example of a quadratic term, which will be included in all models—this term allowed us to test for nonlinear associations of PE-fit and well-being (i.e., if there is such thing as too much PE-fit). If this term

[5] Controlling for normativity is standard procedure in analyses of one-to-one similarity (e.g., similarity in romantic relationships) or one-to-one perception (e.g., similarity between self- and close other-perception). However, controlling for normativity within a PE-fit context has the potential to remove the very associations of interest, as the normative profile is calculated in nearly the same way as the environment profile: that is both are aggregations of the sample (Götz et al., 2018). Generally, this approach is not recommended when studying large aggregations, such as states or regions. We have chosen to control for normativity in this case, as we are studying narrower geographic regions and believe these communities to differ substantively enough that removing the normative profile will not remove all the key associations. That being said, we recognize this step results in a more conservative estimate of fit and potentially lowers power to detect predictors and outcomes of PE-fit.

is nonsignificant, we omitted it and tested a simplified, linear version of the model. If PE-fit can be generated from both integration and assimilation, we may expect to find greater heterogeneity of well-being at high levels of PE-fit: that is, immigrants who have integrated will have high fit and greater well-being, while those who have assimilated will have high PE-fit and worse well-being. We, therefore, tested for heteroskedasticity in these models using White's (1980) test, bootstrapped with 1,000 iterations (Jeong & Lee, 1999) using the whitestrap package (Pérez, 2020). Finally, we tested whether the relationship of PE-fit to well-being is moderated by the following variables: immigrant age, immigrant education level, and immigrant region of origin.

Preregistration and Transparency

We preregistered our analyses upon acceptance of our Stage 1 article using the Open Science Framework (OSF at https://osf.io/kajep). Our preregistration is linked to an OSF project (https://osf.io/k78bd/?view_only=aa237eb2d9de47698c313c5144e2e3d0) that will be used to share analysis code. Data are expected to be available upon request at the time of publication and later publicly accessible via the Harvard Dataverse. We will use the OSF project to communicate to readers the accessibility of data.

Results

RQ1: Quantifying Immigrant Fit

The average PE-fit slope coefficient among our immigrant sample was $b = 0.23$ (95% CI [0.23, 0.24], $p < .001$). As a reminder, this is after controlling for the normative profile, implying that an immigrant's distinctive fit to their ZCTA is, on average, about a correlation of .23. The estimated standard deviation of slopes across participants is $\hat{\sigma}_{1D} = 0.15$. The estimated standard deviation of slopes across ZCTAs is $\hat{\sigma}_{ZCTA} = 0.06$. Extracting the person-level estimates of the slopes, we find that PE-fit estimates ranged from −0.54 to 0.58 (see Figure 2A).

As a sensitivity analysis, we refit this model with all immigrants who reported speaking English "not well" or "not at all—need translation." In this analysis, we found no difference in the average PE-fit slope when using this more inclusive sample. The average PE-fit slope was $b = .23$ (95% CI [0.22, 0.23], $p < .001$). The estimated standard deviation of slopes across participants is $\hat{\sigma}_{1D} = 0.15$. The estimated standard deviation of slopes across ZCTAs is $\hat{\sigma}_{ZCTA} = 0.06$. Person-level estimates ranged from −0.53 to 0.61. As English fluency increased, so did the expected PE-fit coefficient: immigrants who reported that they need translation had an expected PE-fit of 0.12 [.10, .14], as did immigrants who spoke English "not well" ($b = 0.12$ [0.11, 0.13]); immigrants who spoke English well had an expected PE-fit of 0.19 [0.18, 0.19] and those who spoke English very well or fluently had an expected PE-fit of 0.26 [0.26, 0.27]. Notably, there were far more immigrants who reported speaking English fluently ($N = 22{,}230$) and well ($N = 19{,}632$) than those who spoke English not well ($N = 2{,}983$) or needed translation ($N = 1{,}086$), which is why the estimates changed so little after adding the latter two groups.

Next, we fit a model with all U.S. residents. Included in the person-level estimation of slope (PE-fit) is a variable indicating whether the participant is a U.S. native (1) or an immigrant (0). In other words, we tested the degree to which native/immigrant status moderates PE-fit. This coefficient was significantly positive, $b = 0.12$ (95% CI [0.12, 0.13], $p < .001$), indicating that U.S. natives had significantly better fit to their ZCTAs than immigrants. Indeed, PE-fit estimates for U.S. natives ranged from −0.38 to 0.78 (see Figure 2B). Notably, in this model, the average PE-fit for immigrants was 0.35 (with a range from −0.37 to 0.72), which is larger than the average fit in the model with only immigrants. That is, the inclusion of the (much larger) U.S. sample has resulted in the regularization of immigrant PE-fit toward the U.S. native mean. This is unlikely to affect differences between U.S. immigrants and has no bearing on the remaining analyses. However, we believe this speaks to the analytic consequences of studying minoritized groups using samples in which they are proportionally represented (Rothman et al., 2013). Representative samples may yield results in which unique features of minoritized populations are harder to distinguish because the features of these individuals are overwhelmed by the rest of the sample. Put another way, accurate characterization of minoritized populations requires *oversampling* these individuals.

RQ2: What Person Characteristics Are Associated With PE-Fit?

We have quantified immigrant PE-fit and found that immigrants have significantly lower fit than U.S. natives. Next, we seek to understand what characteristics of immigrants are associated with better fit. These models are estimated using only the sample of immigrants. For each characteristic, we added a predictor to the model at the level of estimating the person slope that indexes the person's standing on that variable.

Age

Immigrant age was significantly associated with PE-fit, $F(6, 18652.78) = 436.75$, $p < .001$. Specifically, PE-fit was lowest among adolescents, aged 13–17 (fit = 0.14, 95% CI [0.14, 0.15]) and increased through each subsequent age group: emerging adulthood (age 18–25; fit = 0.20 [0.20, 0.21]), young adulthood (age 26–35; fit = 0.26 [0.25, 0.27]), early-middle adulthood (age 36–45; fit = 0.31 [0.30, 0.32]), and late-middle adulthood (age 46–55; fit = 0.35 [0.34, 0.36]). After this period, PE-fit leveled off and did not significantly change in late adulthood (age 56–65; fit = 0.36 [0.34, 0.37]) or older adulthood (age 66+; fit = 0.35 [0.33, 0.37]).

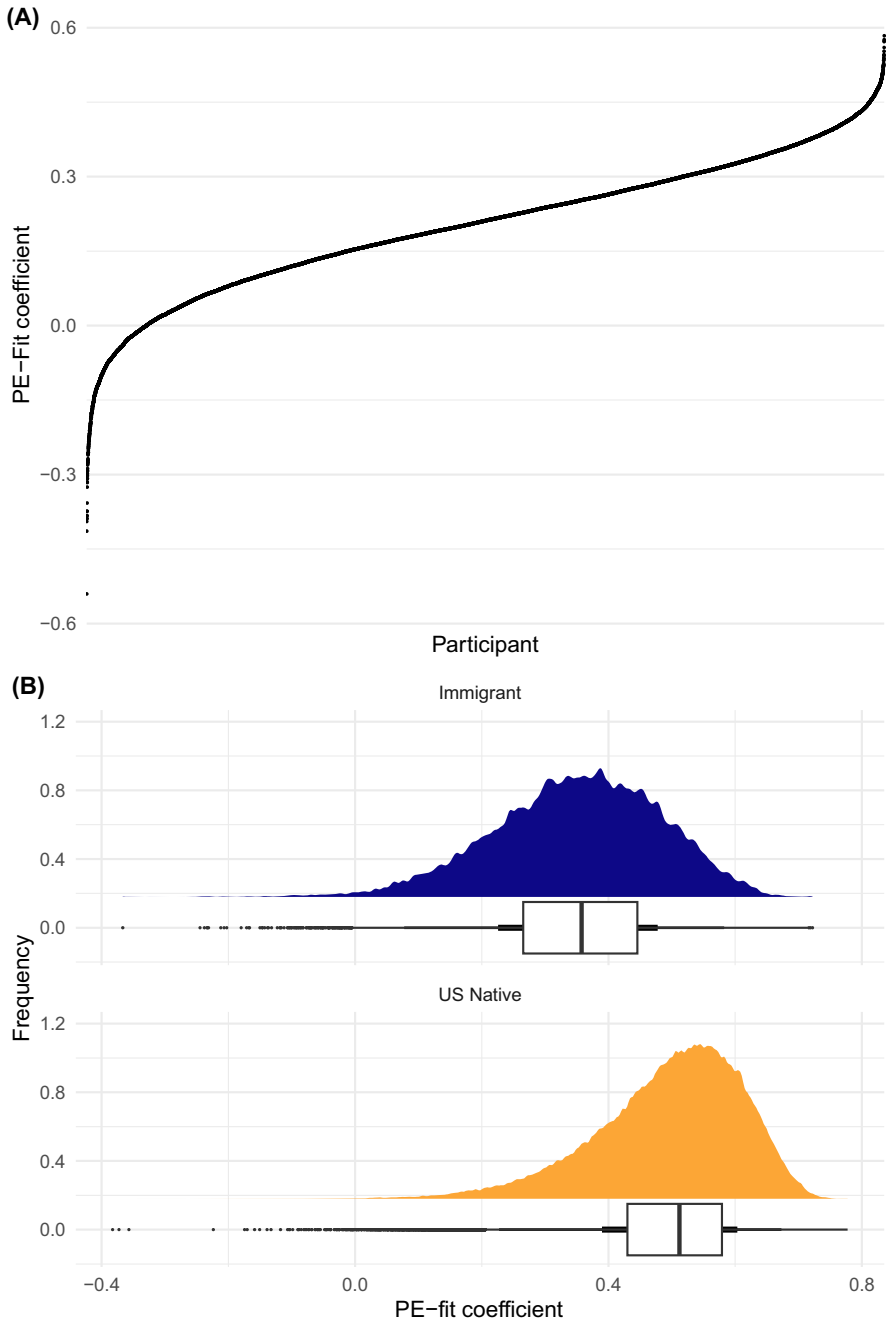
Education

Immigrant education significantly predicted PE-fit, $F(7, 17967.13) = 214.95$, $p < .001$. PE-fit was lowest among immigrants with less than a high school education (fit = 0.14, 95% CI [0.13, 0.15]) and high school graduates (fit = 0.16, 95% CI [0.16, 0.17]) and highest among immigrants with college degrees (fit = 0.26, 95% CI [0.25, 0.26]), associates degrees (fit = 0.26, 95% CI [0.25, 0.28]), and graduate and professional degrees (fit = 0.29, 95% CI [0.29, 0.30]).

Parent Education

Parental education significantly predicted PE-fit, $F(7, 16666.26) = 22.69$, $p < .001$. Immigrants had the best fit if their parents held

Figure 2
Estimates of Individual PE-Fit From Models 1 and 2



Note. (A) PE-fit estimates of immigrants. Bars represent 95% confidence intervals. (B) PE-fit estimates of immigrants and U.S. natives. Histograms show empirical density distributions. Boxplots show median and interquartile range (25th to 75th percentile), although all estimated values are plotted. PE-fit = person-environment fit. See the online article for the color version of this figure.

graduate or professional degrees (0.24, 95% CI [0.23, 0.24]), associate's degrees (0.23, 95% CI [0.21, 0.25]), or some college education but no degree (0.23, 95% CI [0.22, 0.24]); they had the worst fit if their parents were currently studying at a college or university (0.13, 95% CI [0.11, 0.15]).

Region

Immigrants' native region of the world significantly predicted PE-fit, $F(7, 18973.21) = 216.55$, $p < .001$. Immigrants from North America (Canada) had the best fit (0.35, 95% CI [0.33, 0.36]),

followed by immigrants from Oceania (0.30, 95% CI [0.28, 0.32]) and Europe (0.28, 95% CI [0.28, 0.29]). Immigrants from Africa (0.21, 95% CI [0.20, 0.22]) and South/Southeast Asia (0.18, 95% CI [0.17, 0.18]) experienced the worst fit.

Language

The official language of an immigrant's home country significantly predicted PE-fit, $F(7, 18973.21) = 216.55$, $p < .001$. Immigrants from countries that primarily spoke German (0.33, 95% CI [0.31, 0.35]) and French (0.30, 95% CI [0.28, 0.33]) experienced the best fit, while immigrants from countries that primarily spoke Arabic (0.18, 95% CI [0.17, 0.19]) and English (0.21, 95% CI [0.21, 0.22]) experienced the worst.

Personality

All personality traits were significantly associated with immigrant PE-fit. See Figure 3 for all associations; we describe the largest effect sizes here. Immigrants tended to have better PE-fit if they scored higher on Agreeableness and associated narrow traits Honesty and Compassion. Immigrants were also likely to have better PE-fit if they scored higher on Openness and associated narrow traits Art Appreciation, Introspection, Intellect, and Creativity. Finally, Conscientiousness was positively associated with PE-fit, as was the narrow trait of Industry; similarly, Impulsivity was negatively associated with PE-fit.

Quadratic effects were statistically significant for all traits as well, qualifying the associations described above. To evaluate these trends, we plot the relationship between trait and expected PE-fit in Figure 3. We found that the sizes of the quadratic effects were small, such that the linear trends described above generally held, with potential diminishing returns at the more socially desirable ends of each trait. For example, high levels of Impulsivity had a stronger negative association with PE-fit, but at low levels of Impulsivity, the expected change in PE-fit was smaller.

Fit by Country

As exploratory analyses, we estimated the average immigrant PE-fit for each country of origin. These analyses should be interpreted with caution, as not every country is well-represented by these data. We restricted these analyses to only countries with at least 50 immigrants. The countries with the highest fit were, in order, Israel, Puerto Rico,[6] Austria, Canada, Hungary, Germany, Ecuador, Belgium, France, and Peru. Countries with the lowest fit were Mauritius, Bangladesh, Pakistan, Iraq, Czech Republic, Egypt, Morocco, Kuwait, Myanmar, and Namibia.

RQ3: What ZCTA Characteristics Are Associated With PE-Fit?

Immigrant characteristics—education and personality—were significantly associated with better fit. Now we turn to characteristics of the ZCTAs, or zip code-like areas in which immigrants reside. For numeric characteristics (i.e., proportions of ZCTA with college degrees, foreign-born, from the same continent, from the same country, and of shared ancestry), we fit both a linear and quadratic model. The relationships of ZCTA characteristics to PE-fit are displayed in Figure 4.

College Degree

The proportion of residents with a college degree in a ZCTA was significantly associated with PE-fit. As the proportion of residents with a college degree increased, so did immigrant PE-fit ($b = 0.01$, 95% CI [0.00, 0.02], $p = .043$). (Proportions were entered into the model on a scale from 0 = *no residents have college degrees* to 1 = *all residents have college degrees*.) Estimates of PE-fit across the proportion of college graduates is plotted in Figure 4A. The quadratic term in this model was statistically significant ($b = 0.07$, 95% CI [0.02, 0.12], $p = .007$), suggesting that as the proportion of residents with college degrees increased, the gain in PE-fit from more educated residents also increased.

Proportion Foreign-Born

As the proportion of residents born outside the United States increased, so did immigrant PE-fit ($b = 0.06$, 95% CI [0.04, 0.08], $p < .001$). However, the quadratic term in this model was significant ($b = -0.56$, 95% CI [−0.73, −0.40], $p < .001$), suggesting an optimal proportion of foreign-born residents. The plotted estimates of this model suggest that immigrant PE-fit peaks when the proportion of residents born outside the United States is approximately 30%.

Proportion From Continent of Origin

The linear proportion of residents who matched participant's continent of origin did not predict fit ($b = -0.01$, 95% CI [−0.04, 0.03], $p = .743$). However, the quadratic term for this model was significant ($b = 0.61$, 95% CI [0.36, 0.85], $p < .001$). As seen in Figure 4C, immigrants with the highest levels of fit live in ZCTAs with between 40 and 50% of the residents originating from the same continent; lower levels of continent match are associated with worse fit.

Proportion From Country of Origin

The proportion of residents who matched the participant's country of origin was associated with PE-fit ($b = 0.45$, 95% CI [0.35, 0.55], $p < .001$). However, the quadratic term for this model was significant ($b = -5.16$, 95% CI [−6.73, −3.58], $p < .001$). As shown in Figure 4D, the highest levels of PE-fit were at medium amounts of residents who originated from the same country: approximately 10%.

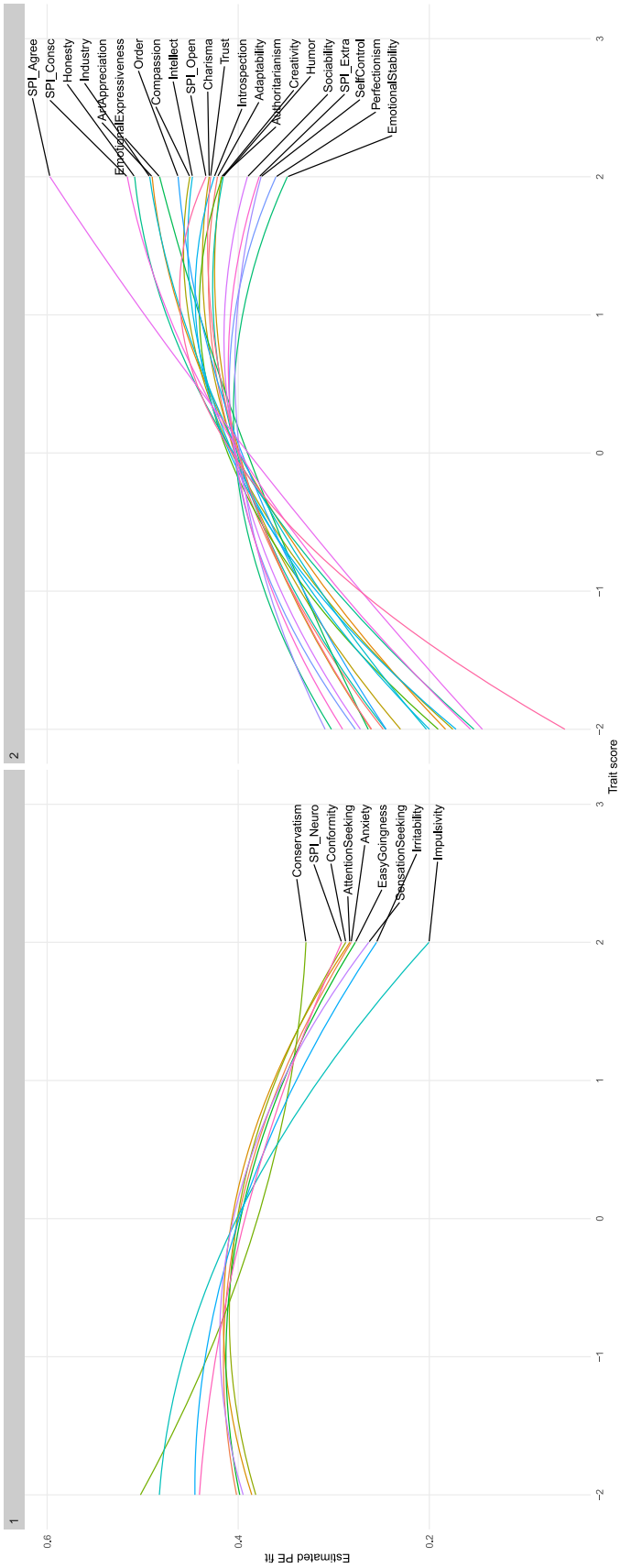
Proportion With Shared Ancestry

Again, there was a curvilinear effect of shared ancestry on immigrant PE-fit ($b = -0.96$, 95% CI [−1.33, −0.60], $p < .001$). In general, higher levels of ancestry match were associated with better fit. However, there appear to be diminishing returns, with fewer gains in PE-fit once the proportion of ancestry-match residents is 30%.

[6] Puerto Rico is a territory of the United States but has no representation in the U.S. government and so is considered, for these analyses, a separate country.

Figure 3

Quadratic Relationships Between Personality Traits and Expected PE-Fit Among U.S Immigrants



Note. Lines show the expected level of PE-fit as a function of trait score. Panels separate trends into those that are generally decreasing (higher trait levels correspond to lower PE-fit) and increasing (higher trait levels correspond to higher PE-fit). Trait scores are standardized. We omit confidence bands for clarity. PE-fit = person-environment fit; SPI = SAPA Personality Inventory; SAPA = Synthetic Aperture for Personality Assessment. See the online article for the color version of this figure.

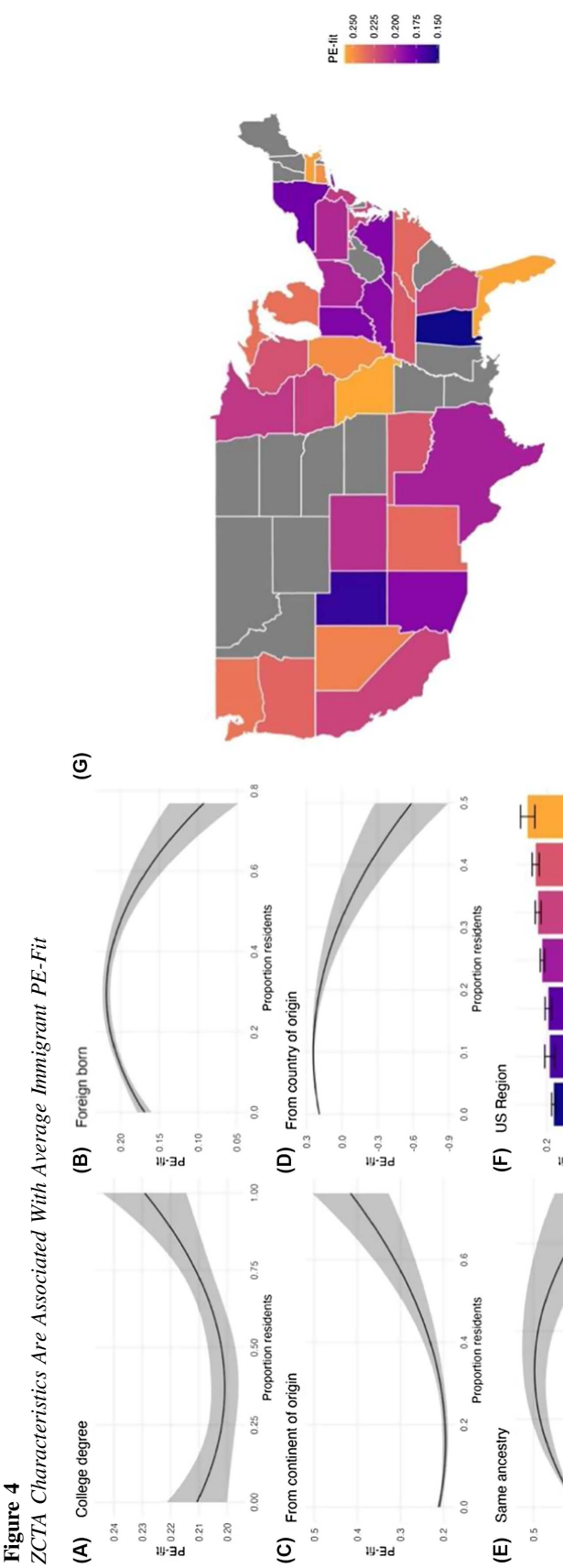


Figure 4
ZCTA Characteristics Are Associated With Average Immigrant PE-Fit

Note. Figure shows the estimated average immigrant PE-fit as a function of the proportion of ZCTA residents (A) with a college degree, (B) born outside the United States, (C) born on the same continent as the immigrant, (D) born in the same country of origin as the immigrant, or (E) having the same ancestry as the immigrant. Shaded ribbons show the 95% confidence band. Panel F shows the average PE-fit by region of the United States, and Panel G depicts the average PE of each state. States are only colored when the sample includes at least 50 immigrants living in that state. PE-fit = person-environment fit; ZCTA = Zip Code Tabulation Area. See the online article for the color version of this figure.

Geographic Region

PE-fit differed significantly by region of the United States, $F(6, 19232.91) = 30.50$, $p < .001$. Fit was highest in the New United Kingdom region of the United States and lowest in the mid-Atlantic. See Figure 4E for fit estimates by state.

RQ4: To What Extent Does PE-Fit Improve Outcomes for U.S. Immigrants?

From the first model fit in RQ1 (using only immigrants), we extract the estimated slopes for each participant, which index the degree of fit to their ZCTA. We then used these slopes as predictors in multilevel models in which immigrants are nested within ZCTA, and we regress well-being onto the slopes. Well-being was standardized, so estimates from the models are in a standardized metric. We fit both linear and quadratic curves. In Table 2, we present both the primary well-being outcomes—Well-being (measured via the SPI-27 scale), self-reported Stress, and self-reported Physical Health. PE-fit was significantly positively associated with Well-Being (std. $b = 0.30$, $p < .001$) and self-reported health (std. $b = 0.18$) and negatively associated with stress (std. $b = -0.11$, $p < .001$). For no outcomes were the quadratic effects statistically significant.

We conducted two sensitivity analyses to evaluate the validity of these results. First, we tested the relationship of PE-fit to a different measure of well-being: the Ryff Psychological Well-being Scale. This was done because the PE-fit items and well-being items came from the same measurement framework, the Synthetic Aperture for Personality Assessment Personality Inventory (Condon, 2017). In other words, we evaluated whether associations between PE-fit and Well-being were due to measurement overlap. Associations with the Ryff Well-Being facets were also significant, and the effects were close in size (ranging from 0.19 to 0.27).

Second, we evaluated the association of PE-fit to these outcomes controlling for the Big Five traits. This was done to evaluate whether associations were due to personality as a third variable. For all primary outcomes, PE-fit remained a significant predictor, although effect sizes were diminished (Well-being b std = 0.09, $p < .001$; stress std $b = -0.05$, $p < .001$; health std. $b = 0.06$, $p < .001$).

Theory suggests that high levels of PE-fit may arise from processes of integration (associated with positive outcomes) and assimilation (associated with negative outcomes); if both are equally common among immigrants, we would expect to find that immigrants with the highest levels of PE-fit to their U.S. communities are those with both the best and worst outcomes. Such a pattern would manifest as greater heterogeneity of well-being at the highest levels of PE-fit. We tested for this using White's (1980) test, which tests for heteroskedasticity in the residuals of a model. Given the constraints of the test, we fit nonnested linear models regressing outcomes onto PE-fit and tested these residuals. Indeed, for all three outcomes, the result was statistically significant ($\text{statistic}_{\text{well-being}} = 73.30$, $p < .001$; $\text{statistic}_{\text{stress}} = 34.92$, $p < .001$; $\text{statistic}_{\text{well-being}} = 84.27$, $p < .001$). However, visual inspection of the residual plots (shown in Supplemental Table S11) revealed no clear pattern of heterogeneity; we conclude that any effect size for heterogeneity is small.

We tested whether the relationships between PE-fit and positive outcomes were moderated by immigrant characteristics. In other words, does PE-fit matter more for some people than for others? The three immigrant characteristics tested here—age, education, and region of origin—were all significant moderators of the PE-fit–outcomes relationships. We show the estimated relationships between PE-fit and outcomes at different levels of these moderators in Figure 5.

Age was a significant moderator of the relationship between PE-fit and all three outcomes: well-being, $F(6, 20063.18) = 6.20$, $p < .001$, stress, $F(6, 12472.56) = 2.23$, $p = .037$, and health, $F(6, 19857.08) = 2.16$, $p = .044$. In general, the relationship between PE-fit and well-being was lowest for adolescents and then increased through young adulthood (ages 26–35). From here, the relationship did not significantly change, except that the relationship between well-being and PE-fit was very strong for the oldest adults in the sample (66+). However, given that this age had the fewest participants in the sample, this effect may be due to sampling error. A similar trend was found for the outcomes of stress and health, although inspection of the simple slopes suggests no significant pairwise differences between slopes.

Education was also a significant moderator of the relationship between PE-fit and all three outcomes: well-being, $F(7, 19527.46) = 6.16$, $p < .001$, stress, $F(7, 12578.84) = 2.48$, $p = .015$, and health, $F(7, 19250.21) = 3.45$, $p = .001$. The PE-fit–outcomes relationships were weakest for those with the lowest levels of education, thus reproducing the main effect from the age analysis (as these individuals are mainly those in the youngest cohort).

Finally, region of origin was also a significant moderator of the relationship between PE-fit and all three outcomes: well-being, $F(6, 20063.18) = 6.20$, $p < .001$, stress, $F(6, 12472.56) = 2.23$, $p = .037$, and health, $F(6, 19857.08) = 2.16$, $p = .044$. In general, the relationship between PE-fit and well-being was strongest for immigrants from South and Central America, Africa, and

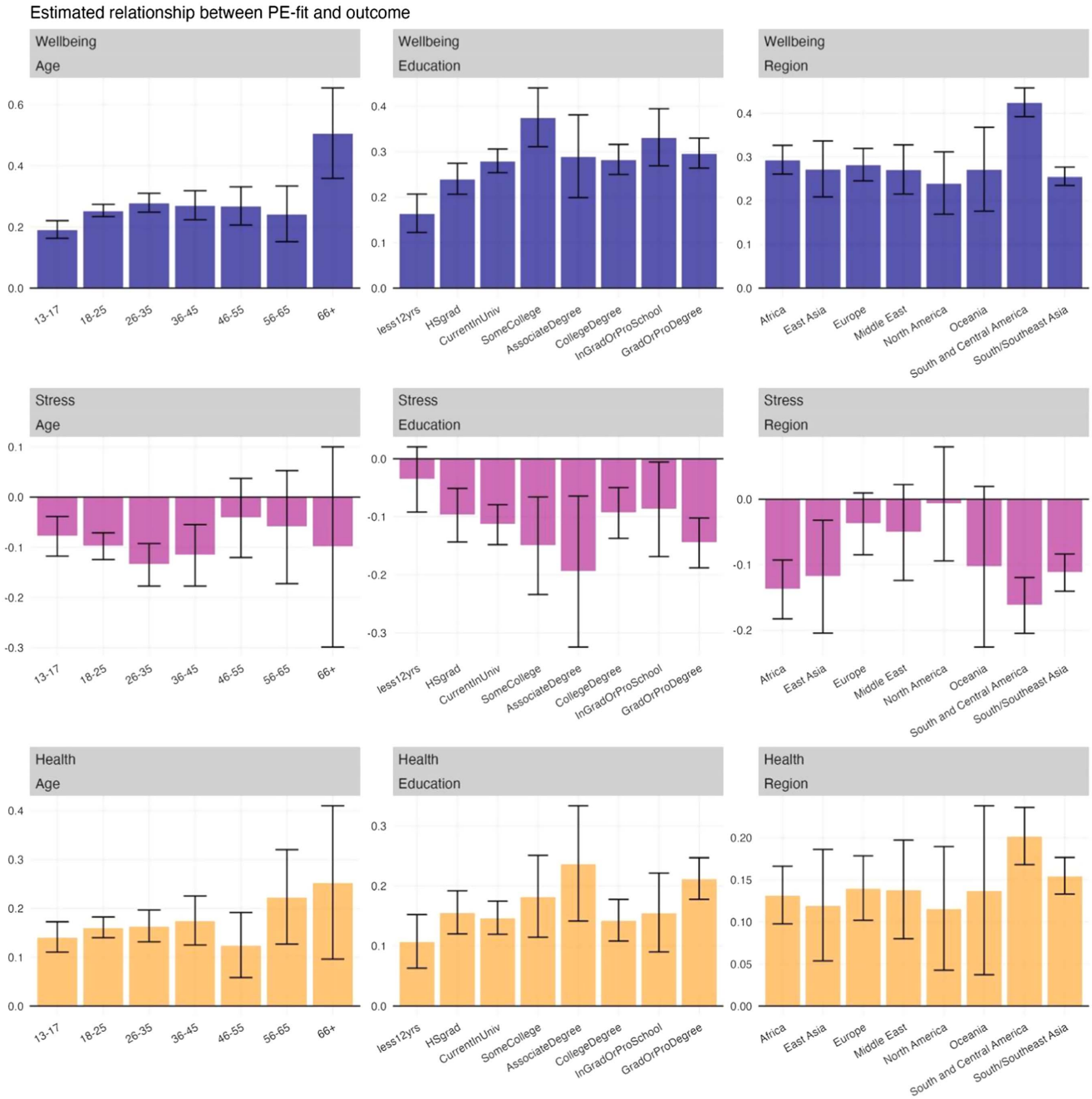
Table 2
Associations Between PE-Fit and Important Outcomes (Well-Being, Stress, and Health)

Outcome	Linear model	Quadratic model	
	PE-fit	PE-fit	PE-fit^2
Well-being	**0.30 (0.01)**	**0.30 (0.01)**	−0.01 (0.00)
	***p* < .001**	**p < .001**	*p* = .211
Stress	**−0.11 (0.01)**	**−0.11 (0.01)**	0.00 (0.01)
	***p* < .001**	**p < .001**	*p* = .437
Health	**0.18 (0.01)**	**0.18 (0.01)**	0.01 (0.00)
	***p* < .001**	**p < .001**	*p* = .144
Exploratory measures (Ryff psychological well-being facets)			
Autonomy	**0.18 (0.04)**	0.17 (0.04)	−0.04 (0.03)
	***p* < .001**	***p* < .001**	*p* = .140
Environmental mastery	**0.20 (0.04**	0.21 (0.04)	0.03 (0.03)
	***p* < .001**	***p* < .001**	*p* = .274
Personal growth	**0.27 (0.04)**	0.27 (0.04)	0.00 (0.02)
	***p* < .001**	***p* < .001**	*p* = .981
Positive relations	**0.25 (0.03)**	0.26 (0.03)	0.01 (0.03)
	***p* < .001**	***p* < .001**	*p* = .815
Purpose in life	**0.26 (0.03)**	0.25 (0.04)	−0.03 (0.02)
	***p* < .001**	***p* < .001**	*p* = .244
Self-acceptance	**0.19 (0.03)**	0.19 (0.03)	−0.01 (0.02)
	***p* < .001**	***p* < .001**	*p* = .711

Note. Coefficient estimates are standardized. Bold values indicate $p < .001$. PE-fit = person-environment fit.

Figure 5

Estimated PE-Fit to Well-Being Relationships Across Levels of Moderators (Age, Education, and Region of Origin)



Note. Relationships are standardized simple slopes derived from moderated regression models. Error bars represent 95% confidence intervals of these estimates. PE-fit = person-environment fit. See the online article for the color version of this figure.

East Asia and weakest for immigrants from North America and Europe.

Discussion

Immigrants make up a large number and proportion of the residents of the United States and contribute substantially to the country's economy and culture; thus, understanding their experiences—especially their sources of health and well-being—is an essential task. Notably, key processes identified in the immigrant experience (e.g., socialization and selection) mirror processes identified in the person-environment fit literature, suggesting that our understanding of immigrant experiences may be deepened by incorporating both theories and methods originating in the study of PE-fit. The present

study attempted to start such an investigation, using a large and geographically diverse sample of U.S. immigrants. We found that immigrant PE-fit—as measured via the correspondence between self-ratings on personality items and the average response by residents in one's ZCTA to those items—is extremely varied across individuals, although on average, immigrants experience worse PE-fit than U.S. natives. Immigrant PE-fit appears to vary as a function of both immigrant characteristics (e.g., age and education) as well as features of their U.S. zip code (e.g., resident demographics and region). Most importantly, immigrant PE-fit was positively associated with health and well-being. This finding underscores the potential for PE-fit to serve as a mechanism by which immigrants do or do not thrive after immigrating, as well as the utility of the PE-fit literature more broadly in informing future research on immigrant experiences.

Immigrant PE-Fit Is Associated With Well-Being and Health

A key finding of the present study is that immigrant health and well-being are positively associated with PE-fit. As mentioned in the introduction, immigrants experience a wide range of physical and mental health outcomes after arriving in the United States (Chang, 2019; Oh et al., 2021; Rodriguez et al., 2021); our findings suggest that PE-fit may be an important contributor to immigrant health. Low PE-fit may contribute to stress (Yang et al., 2008) and consequently greater rates of depression and cardiovascular disease (e.g., Dressler et al., 2005; Stavrova, 2015). Similarly, better PE-fit may buffer the impacts of other stressors on health.

Alternatively, PE-fit may not directly impact health, but rather serve as an indicator of important environmental features. PE-fit was higher when immigrants lived in a community with others of shared backgrounds. Such communities likely facilitate access to goods and services. For example, these communities are more likely to have grocery stores that stock culturally specific foods, and service providers are more likely to share a language with immigrant residents. Thus, immigrants may both experience a better cultural fit and be able to fulfill needs with ease.

Associations between PE-fit and well-being were as strong as most trait–outcome associations found in prior work: that is, effect sizes ranged between standardized effects of .10 and .30. These effects held even controlling for broad traits. Together, these findings suggest that PE-fit is an important individual difference distinct from commonly studied aspects of personality and merits continued investigation within the immigrant community.

Subsequent work should seek to replicate these findings and evaluate the potential causal mechanisms. Among the most likely processes is that greater PE-fit causes greater well-being and lower stress, which is the default causal assumption within the domain of organizational psychology (Van Vianen, 2018). However, it may be the case that when immigrants experience better physical and mental health, they are better able to seek out environments that fit their personalities or are more likely to adjust their personalities to match their environments. Of course, there may be additional third variables not explored here, especially features of environments that may foster an individual's health or sense of agency.

Additional work may address potential nonlinear effects of PE-fit. Quadratic effects, which were nonsignificant here, would imply an optimal level of PE-fit, after which well-being would decrease. Untested are diminishing returns or the point at which additional PE-fit no longer leads to expected increases in health or well-being. In other words, should immigrants seek to maximize PE-fit or merely achieve an adequate level of PE-fit to their community?

Immigrant PE-Fit Is Lower Than U.S. Native PE-Fit

It is unclear why immigrant PE-fit is lower than that of U.S. natives. One may have expected that immigrants have better PE-fit, as—by definition—they have chosen to move residence and may have been expected to seek areas that better suit their personalities (Jokela, 2009; Jokela et al., 2008). This finding suggests that immigrants are either motivated to move for reasons other than fit or are prioritizing other features of the environment. Moreover, we may expect that fit differs as a function of choice or reason for emigrating. While we did not have data on the reason for moving, person characteristics may hint toward opportunities (or lack thereof) to choose a location. Overall, we suspect that lack of power and resources to choose environments limits immigrants' potential to find strong fit with U.S. communities. Moreover, cultural and language differences may also be important explanations. This is supported by the findings that immigrants experience better fit when living in communities with other immigrants or when emigrating from cultures more similar to the United States (e.g., from countries that speak German vs. countries that speak Arabic).

Immigrant PE-Fit Varies by Person and Environment

As noted in the introduction, a primary contribution of this study is identifying the conditions under which and immigrants for whom PE-fit is the highest. Adults in middle adulthood and adults with higher levels of education have the greatest levels of PE-fit. We may expect that these immigrants—those who are active in the workforce and potentially family breadwinners—have more opportunities to maximize person-environment fit, especially if they move to the United States for the purposes of work. Their family members, especially their adolescent children, may have less agency and be required to follow an adult family member to a location that suits them less. Importantly, these findings suggest that selection, rather than socialization, is the primary process behind immigrant PE-fit. We may find that socialization has greater influence on adolescents and young adults, who have greater capacity for personality change (Fraley & Roberts, 2005). However, a relatively unexplored pathway may be the transcendent experience of higher education itself. University education immerses individuals in an academic culture that prioritizes ideas, empirical evidence, and universally accepted standards. This implies that for educated immigrants, their integration and adaptability in a different host culture where there is a large proportion of other educated residents might stem not just from preexisting qualities (selection) but also from the transformative socialization experience provided by their university education.

Similarly, PE-fit was better for immigrants high in traits related to openness, including creativity, intellect, and introspection. This suggests that openness is a key mechanism for selection, again highlighting the strength of this process for PE-fit. This finding is consistent with prior work suggesting that openness is related to migration and working abroad (Furnham, 2017; Jokela, 2009; Paulauskaitė et al., 2010). Agreeableness, honesty, and compassion were also associated with PE-fit, but it is unclear to what extent these

traits drive migration (selection) or are fostered by new environments (socialization).

As noted above, immigrants experienced a better fit when living with others from a shared background. This finding is not especially surprising, but it does present avenues for future investigation and potential intervention. For example, these findings suggest immigrants experience better outcomes in general when living in a community filled with others with shared cultural experiences. To the extent that such communities can be identified for migrants entering the country or supported materially, outcomes for immigrants may improve. However, before such work can proceed, the causal directions and mechanisms linking fit to outcomes should be identified. It is unclear whether better (psychological) fit causes improved health and well-being or whether a third variable is responsible for all three.

Implications for Person-Environment Fit

The present study not only contributes to a deeper understanding of the experiences of U.S. immigrants but also additional insight into person-environment fit. As expected, PE-fit was higher among middle-aged and older adults than among adolescents and young adults. However, it is unclear whether this finding is specific to immigrant populations or whether it would be true in a more generalizable sample. We expect that it would, for two reasons. First, wealth and autonomy facilitate migration, so we expect those with more resources and choices (older adults) to be better situated to not only migrate but to select an environment that best fits their personality. In other words, as adults age, they are better able to select well-suited communities. Alternatively, it may be that middle-aged and older adults are prioritizing PE-fit in major career and habitation decisions, while younger adults and adolescents prioritize other needs and goals. Indeed, in both the present study and past work (Rauvola et al., 2020), PE-fit is more important to older adults than younger ones. Second, the corresponsive principle (B. W. Roberts et al., 2003; Shanahan, Hill, et al., 2014) implies that PE-fit should improve over the lifespan, as individuals and their environments repeatedly influence each other. Future work is needed to test whether PE-fit improves across the lifespan and under what conditions.

PE-fit in the present study was positively associated with openness to experience, which is consistent with prior work on immigration yet inconsistent with other work suggesting that individuals high in Openness experience worse or lower PE-fit (Eck & Gebauer, 2022; Entringer et al., 2021; Gebauer et al., 2014). The latter set of studies operationalized fit using either religiosity or cultural values. This suggests that openness predicts fit in terms of behaviors but misfit in terms of values. More broadly, these inconsistencies highlight the nuances of PE-fit: that one may fit their community well in some respects but not in others. The relevance of trait-fit versus value-fit may change depending on the outcome of interest.

Limitations and Future Directions

The bidimensional model of acculturation posits that identification or fit with both one's new community and one's community of origin contributes to well-being (Berry, 2005; Nguyen & Benet-Martínez, 2013). The present study examined PE-fit in relation only to an immigrant's new U.S. community but did not address fit to their community of origin. This choice was made deliberately, to focus on characterizing fit in one culture, but integration of both cultures is necessary for future theoretical development. Such integration could better distinguish between immigrants who have integrated (adapted a multicultural framework) from those who have assimilated or rejected their cultural origins. This would require intensive sampling from the community of origin, as well as the U.S. community, to ensure appropriate characterization of both environments. An additional challenge is identifying appropriate communities for comparison, as some countries do not have geographic locations similar to ZCTAs. One may use broader regions, such as cities or states; however, as discussed in the introduction, the use of broader regions may poorly characterize an individual's daily experience or community. Indeed, even within the present study, there is little reason to suspect that ZCTAs are monocultural. A broader challenge to geographically based PE-fit work is the growing cultural diversity of nations, states, cities, and neighborhoods. For feasibility, future work may benefit from focusing on one or a small number of origin countries or cultures, along with a more controlled sampling method.

Relatedly, global self-report questionnaires, like the one used in the present study, have limited capacity to capture within-person variability. One potential source of such variability is frame-switching, or shifting between two or more culturally based interpretive lenses (Benet-Martínez et al., 2002; Ramírez-Esparza et al., 2006). By completing our personality survey in English, immigrants may have engaged in frame switching that causes them to report their personality more similarly to those born in the United States (Ramírez-Esparza et al., 2006). This concern is partially alleviated by the finding that immigrants have worse fit when they emigrate from countries with English as an official language. (French- and German-speaking immigrants had the best fit.) However, exploratory analysis suggested that immigrants who spoke English poorly had worse fit. It is unclear to what extent these immigrants have worse fit and to what extent these estimates are limited by greater measurement error. Future work may better clarify these findings by assessing PE-fit using personality surveys written in the native language of immigrants. Such work may be used to determine whether immigrants experience fit differently when speaking or thinking in one language versus another.

Much of the PE-fit literature distinguishes between processes of selection and socialization. As noted above, some results provide circumstantial evidence for selection as a driving force behind PE-fit (e.g., immigrant age and personality characteristics). However, longitudinal analyses are needed to better distinguish between these processes and quantify their relative contributions to PE-fit. Relatedly, an immigrant's length of residence is likely an important predictor or even cause of PE-fit, to the extent that socialization is a major contributor to fit. We did not have access to that information in the current sample, so we were unable to evaluate the potential contribution of residence length. This variable should be incorporated into future work, specifically to estimate the effect of socialization over selection on PE-fit.

A challenge of geographically based research is the oversaturation of data with responses by those dwelling in urban areas. In the current data set, approximately half of the immigrants and ZCTAs represent urban dwellers. By comparison, approximately 80% of the United States was reported to live in an urban area in 2020 (United States Census Bureau, 2020). In one sense, our data are nonrepresentative of U.S. residents broadly; however, appropriate estimation of effects within specific groups requires equivalent sampling, rather than representative sampling (Rothman et al., 2013).

In other words, it is better to oversample minoritized populations—such as those living in rural areas—when seeking to estimate effects within those groups. Future research may wish to examine the differences between PE-fit and their correlations within urban versus rural areas; such research would require explicit oversampling of rural communities.

Finally, the limited replication of the Big Five structure across cultures (Cutler & Condon, 2023; De Raad et al., 2010; Thalmayer & Saucier, 2014) limits the interpretation of personality effects in this context. This concern is ameliorated somewhat in this case by the additional use of the 27 factors of the SPI, especially given the multinational nature of the sample used to develop this scale (Condon, 2017). We propose that future work can scaffold the findings here by using a variety of measures and items, including self-reports of values and interests. Indeed, we suggest that future work may abandon broad traits altogether and focus on comprehensive sets of items or nuances (e.g., Mõttus et al., 2020).

Conclusion

The present study explored PE-fit among immigrants in various U.S. communities, revealing that PE-fit among immigrants differed and was typically lower compared to U.S. natives. PE-fit was determined both by the characteristics of immigrants and the characteristics of the communities to which they moved. Although this investigation did not reveal what drives fit or what fit reflects (assimilation, integration/biculturalism), the findings are significant. They demonstrate the impact of immigrant PE-fit on health and well-being, highlighting how it varies according to particular demographic, residential, and psychological factors. This research paves the way for future studies to better understand the acculturation experiences of immigrants in the United States and the complex interplay between location, culture, and personality.

References

Bacolod, M., Blum, B. S., & Strange, W. C. (2009). Skills in the city. *Journal of Urban Economics*, *65*(2), 136–153. https://doi.org/10.1016/j.jue.2008.09.003

Barranti, M., Carlson, E. N., & Côté, S. (2017). How to test questions about similarity in personality and social psychology research: Description and empirical demonstration of response surface analysis. *Social Psychological & Personality Science*, *8*(4), 465–475. https://doi.org/10.1177/1948550617698204

Bates, D., Mächler, M., Bolker, B., & Walker, S. (2015). Fitting linear mixed-effects models using lme4. *Journal of Statistical Software*, *67*(1), 1–48. https://doi.org/10.18637/jss.v067.i01

Beck, E. D., Condon, D., & Jackson, J. (2023). Interindividual age differences in personality structure. *European Journal of Personality*, *37*(3), 257–275. https://doi.org/10.1177/08902070221084862

Benet-Martínez, V., Leu, J., Lee, F., & Morris, M. W. (2002). Negotiating biculturalism: Cultural frame switching in biculturals with oppositional versus compatible cultural identities. *Journal of Cross-Cultural Psychology*, *33*(5), 492–516. https://doi.org/10.1177/0022022102033005005

Berry, J. W. (2003). *Conceptual approaches to acculturation*. American Psychological Association. https://doi.org/10.1037/10472-004

Berry, J. W. (2005). Acculturation: Living successfully in two cultures. *International Journal of Intercultural Relations*, *29*(6), 697–712. https://doi.org/10.1016/j.ijintrel.2005.07.013

Berry, J. W., Phinney, J. S., Sam, D. L., & Vedder, P. (2006). Immigrant youth: Acculturation, identity, and adaptation. *Applied Psychology*, *55*(3), 303–332. https://doi.org/10.1111/j.1464-0597.2006.00256.x

Bleidorn, W., Schönbrodt, F., Gebauer, J. E., Rentfrow, P. J., Potter, J., & Gosling, S. D. (2016). To live among like-minded others. *Psychological Science*, *27*(3), 419–427. https://doi.org/10.1177/0956797615627133

Boneva, B. S., & Frieze, I. H. (2001). Toward a concept of a migrant personality. *Journal of Social Issues*, *57*(3), 477–491. https://doi.org/10.1111/0022-4537.00224

Cable, D. M., & Edwards, J. R. (2004). Complementary and supplementary fit: A theoretical and empirical integration. *Journal of Applied Psychology*, *89*(5), 822–834. https://doi.org/10.1037/0021-9010.89.5.822

Carlson, E. N., & Furr, R. M. (2009). Evidence of differential meta-accuracy: People understand the different impressions they make. *Psychological Science*, *20*(8), 1033–1039. https://doi.org/10.1111/j.1467-9280.2009.02409.x

Chang, C. D. (2019). Social determinants of health and health disparities among immigrants and their children. *Current Problems in Pediatric and Adolescent Health Care*, *49*(1), 23–30. https://doi.org/10.1016/j.cppeds.2018.11.009

Chatman, J. A. (1989). Improving interactional organizational research: A model of person-organization fit. *Academy of Management Review*, *14*(3), 333–349. https://doi.org/10.2307/258171

Choy, B., Arunachalam, K., Gupta, S., Taylor, M., & Lee, A. (2021). Systematic Review: Acculturation strategies and their impact on the mental health of migrant populations. *Public Health in Practice*, *2*, Article 100069. https://doi.org/10.1016/j.puhip.2020.100069

Church, A. T., Reyes, J. A. S., Katigbak, M. S., & Grimm, S. D. (1997). Filipino personality structure and the Big Five model: A lexical approach. *Journal of Personality*, *65*(3), 477–528. https://doi.org/10.1111/j.1467-6494.1997.tb00325.x

Comrey, A. L., & Lee, H. B. (2013). *A first course in factor analysis*. Psychology Press. https://doi.org/10.4324/9781315827506

Condon, D. M. (2017). *The SAPA Personality Inventory: An empirically derived, hierarchically organized self report personality assessment model*. PsyArXiv. https://doi.org/10.31234/osf.io/sc4p9

Condon, D. M., Roney, E., & Revelle, W. (2017). A SAPA-project update: On the structure of phrased self-report personality items. *Journal of Open Psychology Data*, *5*(1), Article 3. https://doi.org/10.5334/jopd.32

Constent, A. F. (2017). The healthy immigrant paradox and health convergence. *CESifo: Journal of International Comparisons*, *15*(3), 20–26. https://doi.org/10.2139/ssrn.3074307

Costa, P. T., & McCrae, R. R. (1989). *NEO five-factor inventory (NEO-FFI)*. Psychological Assessment Resources.

Cutler, A., & Condon, D. M. (2023). Deep lexical hypothesis: Identifying personality structure in natural language. *Journal of Personality and Social Psychology*, *125*(1), 173–197. https://doi.org/10.1037/pspp0000443

De Cooman, R., De Gieter, S., Pepermans, R., Hermans, S., Du Bois, C., Caers, R., & Jegers, M. (2009). Person–organization fit: Testing socialization and attraction–selection–attrition hypotheses. *Journal of Vocational Behavior*, *74*(1), 102–107. https://doi.org/10.1016/j.jvb.2008.10.010

De Raad, B., Barelds, D. P., Levert, E., Ostendorf, F., Mlačić, B., Blas, L. D., Hřebíčková, M., Szirmák, Z., Szarota, P., Perugini, M., Church, A. T., & Katigbak, M. S. (2010). Only three factors of personality description are fully replicable across languages: A comparison of 14 trait taxonomies. *Journal of Personality and Social Psychology*, *98*(1), 160–173. https://doi.org/10.1037/a0017184

Denissen, J. J. A., Bleidorn, W., Hennecke, M., Luhmann, M., Orth, U., Specht, J., & Zimmermann, J. (2018). Uncovering the power of personality to shape income. *Psychological Science*, *29*(1), 3–13. https://doi.org/10.1177/0956797617724435

DeVellis, R. F., & Thorpe, C. T. (2021). *Scale development: Theory and applications* (5th ed.). Sage Publications.

Dressler, W. W. (2012). Cultural consonance: Linking culture, the individual and health. *Preventive Medicine*, *55*(5), 390–393. https://doi.org/10.1016/j.ypmed.2011.12.022

Dressler, W. W., Balieiro, M. C., Ribeiro, R. P., & Ernesto Dos Santos, J. (2005). Cultural consonance and arterial blood pressure in urban Brazil. *Social Science & Medicine*, *61*(3), 527–540. https://doi.org/10.1016/j.socscimed.2004.12.013

Eap, S., DeGarmo, D. S., Kawakami, A., Hara, S. N., Hall, G. C., & Teten, A. L. (2008). Culture and personality among European American and Asian American men. *Journal of Cross-Cultural Psychology*, *39*(5), 630–643. https://doi.org/10.1177/0022022108321310

Ebert, T., Gebauer, J. E., Brenner, T., Bleidorn, W., Gosling, S. D., Potter, J., & Rentfrow, P. J. (2022). Are regional differences in psychological characteristics and their correlates robust? Applying spatial-analysis techniques to examine regional variation in personality. *Perspectives on Psychological Science*, *17*(2), 407–441. https://doi.org/10.1177/1745691621998326

Eck, J., & Gebauer, J. E. (2022). A sociocultural norm perspective on Big Five prediction. *Journal of Personality and Social Psychology*, *122*(3), 554–575. https://doi.org/10.1037/pspp0000387

Edo, A. (2019). The impact of immigration on the labor market. *Journal of Economic Surveys*, *33*(3), 922–948. https://doi.org/10.1111/joes.12300

Edwards, J. R. (1991). *Person-job fit: A conceptual integration, literature review, and methodological critique*. Wiley.

Elleman, L. G., Condon, D. M., Holtzman, N. S., Allen, V. R., & Revelle, W. (2020). Smaller is better: Associations between personality and demographics are improved by examining narrower traits and regions. *Collabra: Psychology*, *6*(1), Article 17210. https://doi.org/10.1525/collabra.17210

Elleman, L. G., Condon, D. M., Russin, S. E., & Revelle, W. (2018). The personality of U.S. states: Stability from 1999 to 2015. *Journal of Research in Personality*, *72*, 64–72. https://doi.org/10.1016/j.jrp.2016.06.022

Entringer, T. M., Gebauer, J. E., Eck, J., Bleidorn, W., Rentfrow, P. J., Potter, J., & Gosling, S. D. (2021). Big Five facets and religiosity: Three large-scale, cross-cultural, theory-driven, and process-attentive tests. *Journal of Personality and Social Psychology*, *120*(6), 1662–1695. https://doi.org/10.1037/pspp0000364

Fox, J., & Weisberg, S. (2019). *An R companion to applied regression* (3rd ed.). Sage Publications. https://socialsciences.mcmaster.ca/jfox/Books/Companion/

Fox, M., Thayer, Z., & Wadhwa, P. D. (2017). Assessment of acculturation in minority health research. *Social Science & Medicine*, *176*, 123–132. https://doi.org/10.1016/j.socscimed.2017.01.029

Fraley, R. C., & Roberts, B. W. (2005). Patterns of continuity: A dynamic model for conceptualizing the stability of individual differences in psychological constructs across the life course. *Psychological Review*, *112*(1), 60–74. https://doi.org/10.1037/0033-295X.112.1.60

Franchow, E. I., Suchy, Y., Thorgusen, S. R., & Williams, P. (2013). More than education: Openness to experience contributes to cognitive reserve in older adulthood. *Journal of Aging Science*, *1*(2). https://doi.org/10.4172/2329-8847.1000109

Fulmer, C. A., Gelfand, M. J., Kruglanski, A. W., Kim-Prieto, C., Diener, E., Pierro, A., & Higgins, E. T. (2010). On "feeling right" in cultural contexts. *Psychological Science*, *21*(11), 1563–1569. https://doi.org/10.1177/0956797610384742

Furnham, A. (2017). Personality differences in managers who have, and have not, worked abroad. *European Management Journal*, *35*(1), 39–45. https://doi.org/10.1016/j.emj.2016.10.002

Gebauer, J. E., Bleidorn, W., Gosling, S. D., Rentfrow, P. J., Lamb, M. E., & Potter, J. (2014). Cross-cultural variations in Big Five relationships with religiosity: A sociocultural motives perspective. *Journal of Personality and Social Psychology*, *107*(6), 1064–1091. https://doi.org/10.1037/a0037683

Georgiades, K., Boyle, M. H., & Fife, K. A. (2013). Emotional and behavioral problems among adolescent students: The role of immigrant, racial/ethnic congruence and belongingness in schools. *Journal of Youth and Adolescence*, *42*(9), 1473–1492. https://doi.org/10.1007/s10964-012-9868-2

Gilbreath, B., Kim, T.-Y., & Nichols, B. (2011). Person-environment fit and its effects on university students: A response surface methodology study. *Research in Higher Education*, *52*(1), 47–62. https://doi.org/10.1007/s11162-010-9182-3

Glaeser, E. L., & Mare, D. C. (2001). Cities and skills. *Journal of Labor Economics*, *19*(2), 316–342. https://doi.org/10.1086/319563

Goldberg, L. R. (1993). The structure of phenotypic personality traits. *American Psychologist*, *48*, 26–34. https://doi.org/10.1037/0003-066X.48.1.26

Götz, F. M., Ebert, T., & Rentfrow, P. J. (2018). Regional cultures and the psychological geography of Switzerland: Person–environment–fit in personality predicts subjective wellbeing. *Frontiers in Psychology*, *9*, Article 517. https://doi.org/10.3389/fpsyg.2018.00517

Götz, F. M., Stieger, S., Gosling, S. D., Potter, J., & Rentfrow, P. J. (2020). Physical topography is associated with human personality. *Nature Human Behaviour*, *4*, 1135–1144. https://doi.org/10.1038/s41562-020-0930-x

Güngör, D., Bornstein, M. H., De Leersnyder, J., Cote, L., Ceulemans, E., & Mesquita, B. (2013). Acculturation of personality: A three-culture study of Japanese, Japanese Americans, and European Americans. *Journal of Cross-Cultural Psychology*, *44*(5), 701–718. https://doi.org/10.1177/0022022112470749

Hampson, S. E., Goldberg, L. R., Vogt, T. M., & Dubanoski, J. P. (2007). Mechanisms by which childhood personality traits influence adult health status: Educational attainment and healthy behaviors. *Health Psychology*, *26*(1), 121–125. https://doi.org/10.1037/0278-6133.26.1.121

Harms, P. D., Roberts, B. W., & Winter, D. (2006). Becoming the Harvard man: Person-environment fit, personality development, and academic success. *Personality and Social Psychology Bulletin*, *32*(7), 851–865. https://doi.org/10.1177/0146167206287720

Hays, R. D., Schalet, B. D., Spritzer, K. L., & Cella, D. (2017). Two-item PROMIS® global physical and mental health scales. *Journal of Patient-Reported Outcomes*, *1*, Article 2. https://doi.org/10.1186/s41687-017-0003-8

Hill, P. L., Jackson, J. J., Nagy, N., Nagy, G., Roberts, B. W., Lüdtke, O., & Trautwein, U. (2016). Majoring in selection, and minoring in socialization: The role of the college experience in goal change post–high school. *Journal of Personality*, *84*(2), 194–203. https://doi.org/10.1111/jopy.12151

Holland, J. L. (1997). *Making vocational choices: A theory of vocational personalities and work environments*. Psychological Assessment Resources.

Humberg, S., Nestler, S., & Back, M. D. (2019). Response surface analysis in personality and social psychology: Checklist and clarifications for the case of congruence hypotheses. *Social Psychological & Personality Science*, *10*(3), 409–419. https://doi.org/10.1177/1948550618757600

Hunt, J. (2017). Immigrant patents boost growth. *Science*, *356*(6339), Article 697. https://doi.org/10.1126/science.aan2468

Jeong, J., & Lee, K. (1999). Bootstrapped White's test for heteroskedasticity in regression models. *Economics Letters*, *63*(3), 261–267. https://doi.org/10.1016/S0165-1765(99)00036-1

Jokela, M. (2009). Personality predicts migration within and between US states. *Journal of Research in Personality*, *43*(1), 79–83. https://doi.org/10.1016/j.jrp.2008.09.005

Jokela, M. (2014). Flow of cognitive capital across rural and urban United States. *Intelligence*, *46*, 47–53. https://doi.org/10.1016/j.intell.2014.05.003

Jokela, M., Bleidorn, W., Lamb, M. E., Gosling, S. D., & Rentfrow, P. J. (2015). Geographically varying associations between personality and life satisfaction in the London metropolitan area. *Proceedings of the National Academy of Sciences of the United States of America*, *112*(3), 725–730. https://doi.org/10.1073/pnas.1415800112

Jokela, M., Elovainio, M., Kivimäki, M., & Keltikangas-Järvinen, L. (2008). Temperament and Migration Patterns in Finland. *Psychological Science*, *19*(9), 831–837. https://doi.org/10.1111/j.1467-9280.2008.02164.x

Judge, T. A., & Ferris, G. R. (1992). The elusive criterion of fit in human resources staffing decisions. *Human Resource Planning*, *15*(4), 47–67.

Kitayama, S., Ishii, K., Imada, T., Takemura, K., & Ramaswamy, J. (2006). Voluntary settlement and the spirit of independence: Evidence from Japan's "northern frontier." *Journal of Personality and Social Psychology*, *91*(3), 369–384. https://doi.org/10.1037/0022-3514.91.3.369

Kristof, A. L. (1996). Person-organization fit: An integrative review of its conceptualizations, measurement, and implications. *Personnel Psychology*, *49*(1), 1–49. https://doi.org/10.1111/j.1744-6570.1996.tb01790.x

Kyriazos, T. A. (2018). Applied psychometrics: Sample size and sample power considerations in factor analysis (EFA, CFA) and SEM in general. *Psychology*, *9*(08), 2207–2230. https://doi.org/10.4236/psych.2018.98126

Laajaj, R., Macours, K., Pinzon Hernandez, D. A., Arias, O., Gosling, S. D., Potter, J., Rubio-Codina, M., & Vakis, R. (2019). Challenges to capture the big five personality traits in non-WEIRD populations. *Science Advances*, *5*(7), Article eaaw5226. https://doi.org/10.1126/sciadv.aaw5226

Laher, S., & Dockrat, S. (2019). The five-factor model and individualism and collectivism in South Africa: Implications for personality assessment. *African Journal of Psychological Assessment*, *1*(1), 1–9. https://doi.org/10.4102/ajopa.v1i0.4

Lee, S.-K., Sobal, J., & Frongillo, E. A., Jr. (2000). Acculturation and health in Korean Americans. *Social Science & Medicine*, *51*(2), 159–173. https://doi.org/10.1016/S0277-9536(99)00446-3

Lee, Y., Reiche, B. S., & Song, D. (2010). How do newcomers fit in? The dynamics between person—Environment fit and social capital across cultures. *International Journal of Cross Cultural Management*, *10*(2), 153–174. https://doi.org/10.1177/1470595810370911

Leersnyder, J. D., Kim, H. S., & Mesquita, B. (2020). My emotions belong here and there: Extending the phenomenon of emotional acculturation to heritage culture fit. *Cognition and Emotion*, *34*(8), 1573–1590. https://doi.org/10.1080/02699931.2020.1781063

Leersnyder, J. D., Mesquita, B., & Kim, H. S. (2011). Where do my emotions belong? A study of immigrants' emotional acculturation. *Personality and Social Psychology Bulletin*, *37*(4), 451–463. https://doi.org/10.1177/0146167211399103

Lenth, R. V. (2021). *emmeans: Estimated marginal means, aka least-squares means* [Manual]. https://CRAN.R-project.org/package=emmeans

Ludeke, S. G., & Larsen, E. G. (2017). Problems with the big five assessment in the world values survey. *Personality and Individual Differences*, *112*, 103–105. https://doi.org/10.1016/j.paid.2017.02.042

McCrae, R. R., Yik, M. S. M., Trapnell, P. D., Bond, M. H., & Paulhus, D. L. (1998). Interpreting personality profiles across cultures: Bilingual, acculturation, and peer rating studies of chinese undergraduates. *Journal of Personality and Social Psychology*, *74*(4), 1041–1055. https://doi.org/10.1037/0022-3514.74.4.1041

Merecz, D., & Andysz, A. (2012). Relationship between person-organization fit and objective and subjective health status (person-organization fit and health). *International Journal of Occupational Medicine and Environmental Health*, *25*(2), 166–177. https://doi.org/10.2478/s13382-012-0020-z

Miramontez, D. R., Benet-Martínez, V., & Nguyen, A.-M. D. (2008). Bicultural identity and self/group personality perceptions. *Self and Identity*, *7*(4), 430–445. https://doi.org/10.1080/15298860701833119

Morrill, R., Knopp, L., & Brown, M. (2007). Anomalies in red and blue: Exceptionalism in American electoral geography. *Political Geography*, *26*(5), 525–553. https://doi.org/10.1016/j.polgeo.2007.03.006

Mõttus, R., Wood, D., Condon, D. M., Back, M. D., Baumert, A., Costantini, G., Epskamp, S., Greiff, S., Johnson, W., Lukaszewski, A., Murray, A., Revelle, W., Wright, A. G. C., Yarkoni, T., Ziegler, M., & Zimmermann, J. (2020). Descriptive, predictive and explanatory personality research: Different goals, different approaches, but a shared need to move beyond the Big Few traits. *European Journal of Personality*, *34*(6), 1175–1201. https://doi.org/10.1002/per.2311

Muchinsky, P. M., & Monahan, C. J. (1987). What is person-environment congruence? Supplementary versus complementary models of fit. *Journal of Vocational Behavior*, *31*(3), 268–277. https://doi.org/10.1016/0001-8791(87)90043-1

Nguyen, A.-M. D., & Benet-Martínez, V. (2007). Biculturalism unpacked: Components, measurement, individual differences, and outcomes. *Social and Personality Psychology Compass*, *1*(1), 101–114. https://doi.org/10.1111/j.1751-9004.2007.00029.x

Nguyen, A.-M. D., & Benet-Martínez, V. (2013). Biculturalism and adjustment: A meta-analysis. *Journal of Cross-Cultural Psychology*, *44*(1), 122–159. https://doi.org/10.1177/0022022111435097

Obschonka, M., Lee, N., Rodríguez-Pose, A., Eichstaedt, J. C., & Ebert, T. (2020). Big data methods, social media, and the psychology of entrepreneurial regions: Capturing cross-county personality traits and their impact on entrepreneurship in the USA. *Small Business Economics*, *55*(3), 567–588. https://doi.org/10.1007/s11187-019-00204-2

Oh, H., Goehring, J., Jacob, L., & Smith, L. (2021). Revisiting the immigrant epidemiological paradox: Findings from the American panel of life 2019. *International Journal of Environmental Research and Public Health*, *18*(9), Article 4619. https://doi.org/10.3390/ijerph18094619

Olson, K. R. (2007). Why do geographic differences exist in the worldwide distribution of extraversion and openness to experience? The history of human emigration as an explanation. *Individual Differences Research*, *5*(4), 275–288.

Paulauskaitė, E., Šeibokaitė, L., & Endriulaitienė, A. (2010). Big five personality traits linked with migratory intentions in Lithuanian student sample. *International Journal of Psychology: A Biopsychosocial Approach/Tarptautinis psichilogijos žurnalas: Biopsichosocialinis požiūris*, *7*, 41–58.

Pérez, J. L. (2020). *Bootstrapped white's test under the methodology of Jeong, J., lee, K. (1999)* [Manual]. https://github.com/jlopezper/whitestrap

Pew Research Center. (2020). *Facts on U.S. immigrants, 2018*. https://www.pewresearch.org/hispanic/2020/08/20/facts-on-u-s-immigrants-current-data/

Pratt, M. G., & Ashforth, B. E. (2003). Fostering meaningfulness in working and at work. In K. S. Cameron, J. E. Dutton, & R. E. Quinn (Eds.), *Positive organizational scholarship: Foundations of a new discipline* (pp. 309–327). Berret-Koehler.

R Core Team. (2022). *R: A language and environment for statistical computing* [Manual]. https://www.R-project.org/

Ramírez-Esparza, N., Gosling, S. D., Benet-Martínez, V., Potter, J. P., & Pennebaker, J. W. (2006). Do bilinguals have two personalities? A special case of cultural frame switching. *Journal of Research in Personality*, *40*(2), 99–120. https://doi.org/10.1016/j.jrp.2004.09.001

Rauthmann, J. F. (2013). Effects of supplementary and complementary personality-situation fit on personality processes. *Psychology of Everyday Activity*, *6*(2), 41–63.

Rauvola, R. S., Rudolph, C. W., Ebbert, L. K., & Zacher, H. (2020). Person–environment fit and work satisfaction: Exploring the conditional effects of age. *Work, Aging and Retirement*, *6*(2), 101–117. https://doi.org/10.1093/workar/waz011

Rentfrow, P. J., Gosling, S. D., Jokela, M., Stillwell, D. J., Kosinski, M., & Potter, J. (2013). Divided we stand: Three psychological regions of the United States and their political, economic, social, and health correlates. *Journal of Personality and Social Psychology*, *105*(6), 996–1012. https://doi.org/10.1037/a0034434

Richmond, A. H. (1993). Reactive migration: Sociological perspectives on refugee movements. *Journal of Refugee Studies*, *6*(1), 7–24. https://doi.org/10.1093/jrs/6.1.7

Roberts, B. W., Caspi, A., & Moffitt, T. E. (2003). Work experiences and personality development in young adulthood. *Journal of Personality and Social Psychology*, *84*(3), 582–593. https://doi.org/10.1037/0022-3514.84.3.582

Roberts, B. W, Jackson, J. J., Duckworth, A. L., & Von Culin, K. (2011). Personality measurement and assessment in large panel surveys. *Forum for Health Economics & Policy*, *14*(2), 1–32. https://doi.org/10.2202/1558-9544.1268

Roberts, B. W., & Robins, R. W. (2004). Person-environment fit and its implications for personality development: A longitudinal study. *Journal of Personality*, *72*(1), 89–110. https://doi.org/10.1111/j.0022-3506.2004.00257.x

Rodriguez, D. X., Hill, J., & McDaniel, P. N. (2021). A scoping review of literature about mental health and well-being among immigrant communities in the United States. *Health Promotion Practice*, *22*(2), 181–192. https://doi.org/10.1177/1524839920942511

Rothman, K. J., Gallacher, J. E., & Hatch, E. E. (2013). Why representativeness should be avoided. *International Journal of Epidemiology*, *42*(4), 1012–1014. https://doi.org/10.1093/ije/dys223

Ryff, C. D., & Keyes, C. L. M. (1995). The structure of psychological well-being revisited. *Journal of Personality and Social Psychology*, *69*(4), 719–727. https://doi.org/10.1037/0022-3514.69.4.719

Schaubroeck, J., & Lam, S. S. K. (2002). How similarity to peers and supervisor influences organizational advancement in different cultures. *Academy of Management Journal*, *45*(6), 1120–1136. https://doi.org/10.2307/3069428

Schneider, B. (1987). The people make the place. *Personnel Psychology*, *40*(3), 437–453. https://doi.org/10.1111/j.1744-6570.1987.tb00609.x

Schultz, L. (2016). *What does your major say about you? Selection, socialization, and person-environment fit in the context of personality development* [Master's thesis, Washington University in St. Louis]. https://openscholarship.wustl.edu/art_sci_etds/981

Seyle, D. C., & Newman, M. L. (2006). A house divided? The psychology of red and blue America. *American Psychologist*, *61*(6), 571–580. https://doi.org/10.1037/0003-066X.61.6.571

Shanahan, M. J., Bauldry, S., Roberts, B. W., Macmillan, R., & Russo, R. (2014). Personality and the reproduction of social class. *Social Forces*, *93*(1), 209–240. https://doi.org/10.1093/sf/sou050

Shanahan, M. J., Hill, P. L., Roberts, B. W., Eccles, J., & Friedman, H. S. (2014). Conscientiousness, health, and aging: The Life Course of Personality Model. *Developmental Psychology*, *50*, 1407–1425. https://doi.org/10.1037/a0031130

Soto, C. J., & John, O. P. (2016). The next Big Five Inventory (BFI-2): Developing and assessing a hierarchical model with 15 facets to enhance bandwidth, fidelity, and predictive power. *Journal of Personality and Social Psychology*, *113*(1), 117–143. https://doi.org/10.1037/pspp0000096

Stavrova, O. (2015). Religion, self-rated health, and mortality: Whether religiosity delays death depends on the cultural context. *Social Psychological & Personality Science*, *6*(8), 911–922. https://doi.org/10.1177/1948550615593149

Steffens, N. K., Haslam, S. A., Schuh, S. C., Jetten, J., & van Dick, R. (2017). A meta-analytic review of social identification and health in organizational contexts. *Personality and Social Psychology Review*, *21*(4), 303–335. https://doi.org/10.1177/1088868316656701

Thalmayer, A. G., & Saucier, G. (2014). The questionnaire big six in 26 nations: Developing cross–culturally applicable big six, big five and big two inventories. *European Journal of Personality*, *28*(5), 482–496. https://doi.org/10.1002/per.1969

Tsabari, O., Tziner, A., & Meir, E. I. (2005). Updated meta-analysis on the relationship between congruence and satisfaction. *Journal of Career Assessment*, *13*(2), 216–232. https://doi.org/10.1177/1069072704273165

United States Census Bureau. (2020). *2020 census of population and housing*. https://www.census.gov/programs-surveys/decennial-census/decade.2020.html

United States Department of State, United States Department of Homeland Security, & United States Department of Health and Human Services. (2021). *Proposed refugee admissions for fiscal year 2022*. https://www.state.gov/report-to-congress-on-proposed-refugee-admissions-for-fiscal-year-2022

Van Maanen, J. E., & Schein, E. H. (1977). *Toward a theory of organizational socialization*.

Van Vianen, A. E. M. (2018). Person–environment fit: A review of its basic tenets. *Annual Review of Organizational Psychology and Organizational Behavior*, *5*(1), 75–101. https://doi.org/10.1146/annurev-orgpsych-032117-104702

Vega, W. A., Kolody, B., Valle, R., & Weir, J. (1991). Social networks, social support, and their relationship to depression among immigrant Mexican women. *Human Organization*, *50*(2), 154–162. https://doi.org/10.17730/humo.50.2.p340266397214724

White, H. (1980). A heteroskedasticity-consistent covariance matrix estimator and a direct test for heteroskedasticity. *Econometrica*, *48*(4), 817–838. https://doi.org/10.2307/1912934

Wille, B., Beyers, W., & De Fruyt, F. (2012). A transactional approach to person-environment fit: Reciprocal relations between personality development and career role growth across young to middle adulthood. *Journal of Vocational Behavior*, *81*(3), 307–321. https://doi.org/10.1016/j.jvb.2012.06.004

Wille, B., & De Fruyt, F. (2014). Vocations as a source of identity: Reciprocal relations between Big Five personality traits and RIASEC characteristics over 15 years. *Journal of Applied Psychology*, *99*(2), 262–281. https://doi.org/10.1037/a0034917

Wood, D., & Furr, R. M. (2016). The correlates of similarity estimates are often misleadingly positive: The nature and scope of the problem, and some solutions. *Personality and Social Psychology Review*, *20*(2), 79–99. https://doi.org/10.1177/1088868315581119

Wu, C.-H. (2016). Personality change via work: A job demand–control model of Big-five personality changes. *Journal of Vocational Behavior*, *92*, 157–166. https://doi.org/10.1016/j.jvb.2015.12.001

Yang, L.-Q., Che, H., & Spector, P. E. (2008). Job stress and well-being: An examination from the view of person-environment fit. *Journal of Occupational and Organizational Psychology*, *81*(3), 567–587. https://doi.org/10.1348/096317907X243324

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