

Do you fake more because of your neighbors?
A multi-level study on regional and individual predictors of
faking intentions across the U.S.

Michael Schilling
Universität des Saarlandes

Nicolas Roulin
Saint Mary's University

Martin Obschonka
Queensland University of Technology

Cornelius J. König
Universität des Saarlandes

Article in press in Journal of Business and Psychology

Correspondence concerning this article should be addressed to Michael Schilling, Universität des Saarlandes, Arbeits- & Organisationspsychologie, Campus A1 3, 66123 Saarbrücken, Germany.
Tel: +49 681 302 3303. E-mail: michael.schilling@uni-saarland.de

Acknowledgment. We thank Samuel D. Gosling for providing us with reference data of 50 MSAs.

Abstract

Research on faking behavior and underlying intentions has mostly employed an intraindividual perspective, stressing the role of individual-level predictors. Inspired by theoretical arguments (e.g., from socioecological psychology) and cross-cultural studies, we hypothesize and demonstrate that in addition to individual-level predictors, there are also regional differences in faking intentions (within a country) and systematic links to regional-level features. Specifically, we tested and compared individual- and region-level predictors of applicant faking intentions ($N = 4860$ MTurk workers) across the largest 50 Metropolitan Statistical Areas of the U.S. using multi-level techniques. We found individual-level effects of conscientiousness, competitive worldviews and religiosity on individual-level faking intentions. On the regional level, macro-psychological conscientiousness was negatively associated with the average faking intentions in a region, while macro-psychological competitive worldviews (i.e., the prevailing competitive worldviews in a region) showed a positive relationship. Additionally, macro-psychological competitive worldviews predicted individual-level faking intentions even when controlling for individual-level competitive worldviews. No effects were found for regional parameters such as the economic situation of a region. We discuss implications for research and personnel selection.

Keywords: faking; self-presentation; interviews; geographical psychology; regional personality tests; personnel selection; socioecological psychology

Introduction

When using self-assessment tools such as personality tests or interviews, there is always a risk that applicants may distort their answers for various reasons, most likely to increase their chances of getting hired. Such behavior – known as faking – can impair the selection process if it leads to changes in the rank order of the candidates (Christiansen, Goffin, Johnston, & Rothstein, 1994; Donovan, Dwight, & Schneider, 2014; Rosse, Stecher, Miller, & Levin, 1998). According to theories of faking (e.g., Ellingson & McFarland, 2011; Roulin, Krings, & Binggeli, 2016; Tett & Simonet, 2011), some applicants have a higher motivation than others to draw an improved image of themselves, resulting in higher faking intentions and higher faking behavior. To explain these differences, previous research has focused primarily on applicants' personality, attitudes, and personal life situations (e.g., the financial pressure to get the job) (e.g., Buehl & Melchers, 2017; Ellingson, 2012; Levashina, Morgeson, & Campion, 2009). In other words, existing research has mostly employed an intraindividual perspective to understand the potential drivers of faking. Nevertheless, some scholars have also begun to look at cross-cultural differences in the prevalence of faking, showing them to be associated with shared attitudes and values of the inhabitants of a given country (Fell & König, 2016; Fell, König, & Kammerhoff, 2016).

However, group-level differences in shared values and attitudes may exist not only between inhabitants of different countries but also on a much smaller geographical level. Recent research from several fields in the applied social sciences showed that even regions located a few miles away from each other can differ systematically in the characteristics shared by their inhabitants (Bleidorn et al., 2016; Rentfrow et al., 2013) and that such differences can have an impact on people's collective behavioral tendencies (Audretsch, Obschonka, Gosling, & Potter,

2017; Currie, DellaVigna, Moretti, & Pathania, 2010). Such regional differences were also reported for variables that are known predictors of individual faking, such as conscientiousness (e.g., Bleidorn et al., 2016).

Viewing these findings in combination, we argue that faking intentions and behaviors might also vary across regions within the same country. Regional differences in faking may, for instance, make selection methods less effective in regions where faking is more prevalent. Moreover, regional differences in faking present a practical problem for personnel selection in companies. If such differences exist, companies may take them into account when selecting employees from different regions of a country; otherwise, candidates from regions with a low level of faking motivation may be disadvantaged.

By focusing on faking intentions as a proxy for actual faking behavior (e.g., Levashina & Campion, 2006; Marcus, 2009; Roulin et al., 2016), the goal of this study is therefore to gain a deeper understanding of regional differences in faking intentions within a given country (in our case the U.S.) and the so far unknown role of regional-level predictors of faking intentions. Based on the socioecological psychology approach (Oishi & Graham, 2010; Rentfrow, Gosling, & Potter, 2008), individual and macro-psychological factors as well as regional conditions are tested as predictors of applicants' individual faking intentions and of average regional faking intentions. In the following sections, we develop our concrete hypotheses on these multi-level relationships.

Theoretical Background

The Socioecological Psychology Approach

The environment in which we grow up and live has an influence on who we are and how we act (e.g., Hofstede, 2003; Obschonka et al., 2018; Sirin, 2005). Despite this, when

investigating specific behavior, psychological research has long ignored the influence of a person's living environment. Recently, however, efforts to address this issue have been growing (Gurven, 2018). Studies on regional differences and regional effects stem from a variety of fields of psychology and social sciences (see Oishi & Graham, 2010, for a historical overview). While cross-cultural studies are the best-known examples (e.g., Hofstede, 2003; Minkov, 2009), research focusing on small regional units is becoming increasingly important. In addition to shared values (Beugelsdijk & Klasing, 2016; Minkov & Hofstede, 2014) and objective regional differences (Block, Fisch, Lau, Obschonka, & Presse, 2018; Georgiadis & Christopoulos, 2017), these studies have also looked at the influence of macro-psychological characteristics. Inhabitants of a specific region (e.g., U.S. states or cities) have similarities in their attitudes and personality, and different geographical regions vary in these characteristics (Bleidorn et al., 2016; Rentfrow et al., 2008). Moreover, regional macro-psychological characteristics, such as regional differences in attitudes and personality traits, influence individual behavior and well-being (Bleidorn et al., 2016).

The underlying foundation of these studies is the so-called socioecological psychology approach, which aims to close the gap between psychological and sociological research. The basic idea of this approach is that human behavior always occurs against a social-ecological background (Bronfenbrenner, 1979). Humans live in social habitats, and there is a mutual interplay between social habitats and psychological processes and thus human behavior (Bronfenbrenner, 1979; Oishi, 2014). According to this approach, behaviors should only be investigated, and can only be fully understood, when considering the environment in which a person lives. The approach is not seen as a scientific theory in the narrower sense but rather as a meta-model that can be used to understand and study human behavior (Oishi, 2014).

To date, there has been little research from industrial/organizational (I/O) psychology employing such a socioecological psychology approach. As a rare exception, a study on job insecurity by Jiang and Probst (2017) showed that the level of income inequality in a region moderates the relationship between job insecurity and burnout. This first promising result suggests that it is possible to transfer this approach to other I/O research fields. Therefore, the goal of the present study is to look at the phenomenon of faking from a socioecological psychology perspective for the first time.

Faking from a Socioecological Psychology Perspective

Organizations often fill only part of their vacancies with applicants from their own geographical region (Ruhs & Anderson, 2010). Among other factors, labor shortages and the increasing mobility of the working population contribute to this situation (Clemens, 2011; Tonts, 2010). Thus, for many organizations, recruitment takes place at least nationwide and in many cases internationally (Evans, 2010). Although research is scarce, applicants from different regions seem to differ not only in their qualifications and availability, but also in attitudes and values (Minkov & Hofstede, 2012, 2014). If applicants from different regions also behave differently during the selection process, ignoring these differences might lead to biases in personnel selection. Such differences may play an important role in applicant faking. Indeed, a large number of applicants intentionally distort their answers in employment interviews (Levashina & Campion, 2007; Weiss & Feldman, 2006), personality tests (Griffith, Chmielowski, & Yoshita, 2007; Tett, Freund, Christiansen, Fox, & Coaster, 2012), or biodata inventories (Levashina et al., 2009; Levashina, Morgeson, & Campion, 2012). There are also large individual differences in the extent and prevalence of faking (Buehl, Melchers, Macan, & Kühnel, 2019; Hogue, Levashina, & Hang, 2013; Levashina & Campion, 2007).

Several theories have identified the individual motivation to fake as one of the main drivers of the intention to fake and of faking itself (Levashina & Campion, 2006; Marcus, 2009; Roulin et al., 2016). Although research has focused on individual-level antecedents of faking motivation and intention, such as personality traits or attitudes, socioecological psychology research predicts that the region in which an applicant lives impacts faking. For instance, applicants' level of conscientiousness is associated with faking behaviors (Lester, Anglim, & Fullarton, 2015; McFarland & Ryan, 2000; Roulin & Krings, 2016) but conscientiousness is not equally distributed across regions. In particular, Bleidorn et al. (2016) and Rentfrow et al. (2013) showed that some regions include more conscientious people than others, which might in turn lead to varying levels of faking intention. Moreover, some theories include situational factors as antecedents of faking (e.g., Griffith, Lee, Peterson, & Zickar, 2011), such as the labor market situation; by their very nature, these differ between regions. Finally, cross-cultural faking studies also demonstrated that cultural values and norms influence applicants' attitudes towards faking and faking behaviors (Fell & König, 2016, 2018; Fell et al., 2016; König, Hafsteinsson, Jansen, & Stadelmann, 2011; Sandal et al., 2014). In line with these arguments, we propose that applicants from different regions vary in their intention to fake in selection.

H₁: Applicants from different regions within a country vary in their faking intentions.

However, a more important theoretical and practical question is whether we can predict regional differences in faking intentions. In the next section, we introduce our hypotheses derived from the faking literature.

Regional Drivers of Faking

Regional economy. As early as 1986, Pandey argued that the concept of impression management, which is closely related to faking in interviews (Levashina & Campion, 2006),

should be more prevalent in societies where applicants' chances of finding a job are limited. In a slow economy, individuals are more likely to face layoffs, personal financial struggles, or poverty. The pressure to get a job, and the competition for jobs, therefore increases. In such situations, applicants should be highly motivated to perform well in the selection process and thus be more willing to fake. Indicators of the regional or national economic situation are mentioned in a variety of faking theories, both directly in the form of economic factors and labor market indicators (e.g., Bangerter, Roulin, & König, 2012; McFarland & Ryan, 2000; Snell, Sydell, & Lueke, 1999; Tett & Simonet, 2011) and indirectly in the form of the perceived "need for a job" (e.g., Goffin & Boyd, 2009; Griffith et al., 2011; Marcus, 2009).

It should be noted, though, that previous empirical results on the influence of the regional economic situation on inhabitants' faking are mixed and focus mainly on the regional unemployment rate (Fell & König, 2016; Fell et al., 2016; König et al., 2011; König, Wong, & Cen, 2012; Thackray, Tryba, & Griffith, 2013). In line with the theoretical arguments, we expect a negative relationship between the economic situation in a region and faking intentions.

H₂: Applicants living in a region with a stronger economy have lower faking intentions.

Crime rate. Research from different domains of psychology suggests that the ethical behaviors of people in the environment has a crucial influence on individual ethical decisions. (Gino, Ayal, & Ariely, 2009; Zey-Ferrell, Weaver, & Ferrell, 1979). The more people in the same environment engage in unethical behaviors, the less problematic it is for the individual to act unethically as well. For example, people from regions with higher rates of corruption commit more traffic offenses (Fisman & Miguel, 2007). Furthermore, in high crime regions, people engage in fewer altruistic behaviors, such as donating blood (Buonanno, Montolio, & Vanin, 2009).

Applicants' willingness to fake in a job interview can also be construed as an ethical decision, which should also depend on the prevailing ethical norms in the region. The local crime rate represents a reliable and comparable indicator of regional-level unethical behaviors. This variable is usually recorded centrally by government and has been used in other socioecological psychology studies. In line with these arguments, we expect a positive relationship between the crime rate in a region and faking intentions.

H₃: Applicants living in a region with a higher crime rate will have higher faking intentions.

Individual and Macro-Psychological Drivers of Faking

Most faking theories describe individual-level antecedents of faking. Below we discuss three variables identified as key predictors of individual-level faking, namely conscientiousness, competitive worldviews, and religiosity. Following the basic idea of socioecological psychology research and empirical data, regions differ in their *macro-psychological characteristics*, which reflect the inhabitants' average level of certain psychological characteristics (Rentfrow et al., 2008). Previous research has reported regional differences across U.S. regions for conscientiousness (Bleidorn et al., 2016; Rentfrow et al., 2008) and religiosity (Chalfant & Heller, 1991). There may also be regional differences for competitive worldviews. For instance, exposure to social environments characterized by inequality or competition influence people's views of how competitive the world is (Roulin & Krings, 2016). And, different U.S. regions vary in their level of inequality (e.g., Fan & Casetti, 1994). Based on such regional differences in individual-level predictors of faking, we also expect to find a relationship between the macro-psychological characteristics of a region and the average faking intention of applicants from that region.

We based our regional-level hypotheses on the same line of argument put forward by Rentfrow (2008): If there are many people living in a region with above-average (vs. below-average) levels of one of these characteristics (i.e., a high macro-psychological level), then the individual-level effect of this characteristic should lead to higher (vs. lower) faking intentions for applicants from this region. This, in turn, should result in a relationship between the macro-psychological characteristics of a region and the mean faking intentions of applicants from that region, analogous to the relationship between the individual characteristics and faking intentions. However, according to empirical studies as well as statistical research (Blyth, 1972; Simpson, 1951), the generalization of results across different levels of aggregation does not always have to follow this pattern. *Simpson's Paradox* (a special case of the ecological fallacy) describes the fact that correlations found at the individual level do not necessarily occur when looking at the aggregated data of the regions due to confounding and random effects (Blyth, 1972; Simpson, 1951). Therefore, for each of the three individual-level predictors of faking, we wish to test whether the simple line of argument holds true. Accordingly, in addition to testing the relationship between the individual-level characteristics of applicants and their faking intentions, we test the analogous relationship between the macro-psychological characteristics of a region and the corresponding average faking intentions of applicants from that region.

Conscientiousness is characterized by accuracy, reliability, and diligence (McCrae & Costa, 1989; Roberts, Lejuez, Krueger, Richards, & Hill, 2014), and giving dishonest answers in the application context is contrary to these ideals. Therefore, conscientiousness is featured as a key antecedent in many faking theories (e.g., Levashina & Campion, 2006; Mueller-Hanson, Heggstad, & Thornton, 2006). Empirical studies usually show a negative relationship between conscientiousness and faking intentions or faking in job interviews (Buehl & Melchers, 2017;

Lester et al., 2015; Roulin & Krings, 2016). In line with these arguments, we expect a negative relationship between individual-level conscientiousness and faking intentions.

H₄: Applicants with higher conscientiousness have lower faking intentions.

If there are many conscientious inhabitants in a region and individual-level conscientiousness is associated with faking, then there should also be a relationship between conscientiousness and faking at the aggregated level. Therefore, we expect a negative relationship between the macro-psychological conscientiousness level of a region and the average faking intentions of applicants from that region.

H₅: On average, applicants living in a region with a higher mean level of conscientiousness have lower faking intentions.

Competitive worldviews. In addition to job market-level competition, theories of faking have also discussed personal attitudes towards competition and competitive situations (e.g., Tett et al., 2006). More recently, Roulin, Krings and Binggeli (2016) described the effect of two types of competition: (a) attitudes toward competition, as the opportunity to compare oneself with others and learn from it, and (b) perceptions of the world as a competitive place (i.e., competitive worldviews). People with strong competitive worldviews see the world as a place where one has to fight for scarce resources and only the strongest succeed (Duckitt, 2001). Such worldviews are particularly relevant when competition with others is salient, such as when applying for a job. Furthermore, recent studies reported that applicants' competitive worldviews have a strong influence on faking intention and behaviors (Roulin & Bourdage, 2017; Roulin & Krings, 2016). In line with these arguments, we expect a positive relationship between individual-level competitive worldviews and faking intentions.

H₆: Applicants with higher competitive worldviews have higher faking intentions.

If a region contains many people with high levels of competitive worldviews and if individual-level competitive worldviews are associated with individual faking, there should also be a relationship between competitive worldviews and faking at the aggregated level. Thus, we expect a positive relationship between the macro-psychological level of competitive worldviews of a region and the average faking intentions of applicants from that region.

H7: On average, applicants living in a region with a higher mean level of competitive worldviews have higher faking intentions.

Religiosity. Another potential antecedent of faking intentions is applicants' religiosity. Although religiosity has been largely ignored in faking theories, there are reasons to argue for its relevance for faking. First, faking can be considered as a form of lying (e.g., Goffin & Boyd, 2009), behavior against which religious socialization should build a moral barrier. Most denominations explicitly reject lying, including Christianity: "Do not lie" (Leviticus 19:11, New International Version) and Islam: "And, do not cloak and confuse the truth with falsehood" (Quran 2:42, The Noble Quran). Indeed, Allmon, Page, and Roberts (2000) found that religious people differ in how they perceive and evaluate moral situations, and Shariff and Norenzayan (2011) reported a direct negative relationship between religiosity and deceptive behaviors. This socialized rejection of deception and lies likely carries over to the context of job applications and selection. Thus, we expect a negative relationship between the individual-level religiosity and faking intentions.

H8: Applicants with higher religiosity have lower faking intentions

If there are many religious inhabitants in some regions and individual-level religiosity is correlated with individual faking, then there should also be a relationship between religiosity and faking at the aggregated level. Therefore, we expect a negative relationship between the macro-

psychological religiosity level of a region and the average faking intentions of applicants from that region.

H₉: On average, applicants living in a region with a higher mean level of religiosity have lower faking intentions

Contextual Effects

The regional hypotheses discussed so far result from regional differences in individual-level predictors of faking and the aggregation of the corresponding individual-level effects. However, it is also possible that the macro-psychological characteristics of a region may have an effect that goes beyond this accumulated effect originating from the individual level. Macro-psychological factors may build up pressure on the individual to behave according to the prevailing characteristics. In this way, the regional context in which a person lives – the predominant characteristics of the other inhabitants of the region – may have an influence on the person's behavior independently of his/her own personality or attitudes.

All three macro-psychological characteristics we examine have the potential to affect a person's faking intentions beyond the effect originating from the individual-level. For instance, it is possible that if many people in a region have high competitive worldviews scores, there is also a greater perceived competitive pressure in this region. Applicants from such a region should be used to strong competition in many aspects of their lives. Such a perceived competitive pressure may lead to a greater willingness to fake. Thus, higher macro-psychological competitive worldviews in regions may lead to higher applicant faking intentions, independently of the applicant's individual competitive worldviews. Such contextual effects are also possible for conscientiousness and religiosity. Given that there are neither theoretical models nor empirical studies on the corresponding contextual effect for these variables, we take an exploratory

approach here. Taken together, we ask whether there are contextual effects of competitive worldviews, conscientiousness, and religiosity beyond the effect aggregated from the individual level.

RQ₁: Is there a contextual effect of conscientiousness on individual faking intentions?

RQ₂: Is there a contextual effect of competitive worldviews on individual faking intentions?

RQ₃: Is there a contextual effect of religiosity on individual faking intentions?

Methods

Regions

Following previous socioecological psychology research (Obschonka et al., 2016), our regional data are based on the Metropolitan Statistical Areas (MSAs) of the United States of America. The U.S. Office of Management and Budget defines an MSA as an urbanized region with more than 50,000 inhabitants consisting of one or more counties with a high degree of social and economic integration (Mar, 2010). We collected data for the 50 MSAs with the most inhabitants; due to language differences, regions in the US insular areas (e.g., the region “San Juan-Carolina-Caguas” in Puerto Rico) were not included in our study. The MSAs were selected on the basis of the 2010 population figures and the regional boundaries of the MSAs redefined in the same year (U.S. Census Bureau, 2017).

Procedure

Data were collected using Amazon’s Mechanical Turk (MTurk). We created a separate “HIT” (Human Intelligence Task) for each of the 50 MSAs to ensure an equal distribution of participants. Participants were paid U.S. \$0.70. Participants conscientiousness, faking intentions, competitive worldviews and demographic data (including religiosity) were recorded in that order.

To address potential concerns about the quality of MTurk data (Cheung, 2013; Sharpe Wessling, Huber, & Netzer, 2017), we took a number of precautions. First, MTurk workers could only participate in the study if they had a U.S. account, had completed between 100 and 1,000,000 MTurk HITs, and had an approval rate of at least 70%. Second, we confirmed the location of participants by asking them to provide their ZIP code and eliminating them if it did not match the pre-specified MSA. In addition, we geo-localized the IP address of participants and eliminated those who did not match the ZIP code. Third, we used MTurk workers' unique identification number to remove participants who filled out the survey multiple times. This was necessary because distributing the data collection to one HIT per MSA made it technically impossible to prevent participants from participating more than once. Finally, following suggestions in the literature (Curran, 2016; Huang, Bowling, Liu, & Li, 2014; Meade & Craig, 2012), we used an attention check item ("I have never used a computer", taken from Huang et al., 2014) and included it once at the beginning and once toward the end of the survey. Participants who did not answer both items correctly were excluded from our analysis.

Sample

Based on a power analysis, we aimed to collect usable data from 100 people for each MSA¹. To achieve this, we slightly oversampled each MSA (i.e., up to 120 participants). Given that multilevel modeling does not require large sample sizes in the lower-level units (Maas & Hox, 2005), we did not exclude any MSA (mean n per MSA = 97.20, SD = 17.03, range from 50 to 119). In total, 6,881 MTurk workers attempted to participate in our study. We removed a total of 2,021 respondents based on the screening criteria described above. Our final data set thus included 4,860 participants from 50 MSAs, 57% of whom were women. The mean age was 34.4

¹ This project is a stand-alone study, the data were not collected in the course of a larger data collection effort or a larger research project.

years ($SD = 10.70$), 74.5% were White, 8.6% African American, 6.5% Asian or Pacific Islander, 6.3% Hispanic, and 0.4% Native Americans. Overall, 23.9% of participants had a high school leaving certificate and 73.4% a college or university degree. The vast majority of our participants (68.3%) were currently employed, 10.7% were self-employed, 34.6% were unemployed, and 9.2% described MTurk as their primary job. Most participants (50.5%) had one to three job interviews in the last year, 12.4% had more than three job interviews, and 37.1% had no job interview in the last year.

Measures

Faking intentions. We measured individual faking intentions ($\alpha = .92$) with the 15-item scale from Roulin and Krings (2016), which is based on the *slight image creation* and *extensive image creation* subscales from Levashina and Campion (2007). Participants read the following introduction: “Imagine that you have applied for a job in a company that you would very much like to work for. And imagine that you have been invited for a job interview. Please rate the extent to which you would be willing to use each strategy from the list below during your interview.” They were then presented with the item stem “If I were interviewing for this job today, I would be willing to...”, followed by items such as “...distort my work experience to fit the interviewer’s view of the position.” Participants answered on a 5-point scale from 1 = *to no extent* and 5 = *to a very great extent*.

Economic situation. Following the suggestions of the International Labour Organization of the United Nations (obtained from International Labour Office, 2016) and past research (Obschonka, Schmitt-Rodermund, Silbereisen, Gosling, & Potter, 2013; Rentfrow et al., 2013), we operationalized the regional-level economic situation with three indicators: (a) the annual change in the gross domestic product (GDP) (U.S. Census Bureau, 2017), (b) the annual change

in the proportion of people living below the poverty line (U.S. Census Bureau, 2017), and (c) the annual change in the unemployment rate (U.S. Bureau of Labor Statistics, 2017). To avoid overweighting short-term regional fluctuations, the data of the last five years before the survey (2011 to 2015) were averaged (Obschonka et al., 2016, 2015). The poverty and unemployment rates were reverse-keyed, and all three indicators were standardized and then combined. Higher values correspond to a stronger economy in a region during the corresponding five-year period².

Crime rate. The regional-level crime rate was calculated from the crime statistics of the Federal Bureau of Investigation (United States Department of Justice, Federal Bureau of Investigation., 2017). These statistics are divided into data on violent crimes, such as murder and assault, and data on property crime, such as burglary and theft. To ensure a broad operationalization, we standardized and combined the two types of crimes and used data from the previous five years.

Conscientiousness. The individual-level conscientiousness was measured with the corresponding Big Five Inventory scale (BFI, see e.g., John, Naumann, & Soto, 2008). Sample items are “I see myself as someone who make plans and follow through with them” and “I see myself as someone who tends to be disorganized” (reverse coded), with nine items in total ($\alpha = .86$). The instructions for the participants were the following “Here are a number of characteristics that may or may not apply to you. Tell us how much you agree with each statement.” Items were rated on a 5-point scale from 1 = *strongly disagree* to 5 = *strongly agree*. Macro-psychological conscientiousness of an MSA was calculated by averaging the individual-level conscientiousness of participants from that MSA.

² We also re-ran all analyses using all three indicators as individual predictors and found similar results.

Competitive worldviews (CWs). We measured competitive worldviews using the 20-item ($\alpha = .91$) *Competitive-Jungle Social Worldview* scale (Duckitt, 2001). Sample items are “It’s a dog-eat-dog world where you have to be ruthless at times” or “Winning is not the first thing; it’s the only thing”. The instructions for the participants were the following “To what extent do you agree with the following statements:”. Items were again rated on a 5-point scale from 1 = *strongly disagree* to 5 = *strongly agree*. Macro-psychological competitive worldviews of an MSA were calculated by averaging the individual-level competitive worldviews of participants from that MSA.

Religiosity. Individual-level religiosity was measured using a single item from the Gosling-Potter Internet Personality Project (for more information, see Rentfrow et al., 2008): “I consider myself to be...”, with participants indicating their religiosity on a 7-point scale from 1 = *not at all religious* to 7 = *very religious*. The item is very similar to other established single-item measures of religiosity (e.g., “I see myself as someone who is very religious”; Gebauer et al., 2014). Gebauer, Nehrlich, Sedijides, and Neberich (2013) showed that such single-item measures are highly related to longer religiosity measures such as the Duke Religion Index (Koenig, Parkerson, & Meador, 1997). In general, these types of religious measurements are considered to be effective (Norenzayan & Hansen, 2006) and have therefore been frequently used in other social-ecological studies (e.g., Bleidorn et al., 2016). Macro-psychological religiosity of an MSA was calculated by averaging the individual-level religiosity of participants from that MSA.

Results

Data Quality Checks

Search for outliers. We followed the recommendations by Aguinis, Gottfredson, and Joo (2013) on identifying and handling outliers. First, we checked for multi-construct outliers on the aggregated MSA level and found no conspicuous data points. Second, we tested for multi-construct outliers on the participant level. In accordance with the guidelines of Becker and Gather (1999), 48 participants had conspicuous Mahalanobis and leverage values. The removal of these 48 participants did not change the model fit, statistical significance, or conclusions in the following analyses. Since the proportion of such data points was less than one percent of the sample, we reported only the results without removing these cases. Third, we checked for prediction outliers on every step of the multi-level approach reported below and found no conspicuous values for the MSAs.

Representativeness of the data. To evaluate the representativeness of our regional predictor variables, we compared our regional means for conscientiousness and religiosity with the corresponding means from the Gosling-Potter Internet Personality Project (Rentfrow et al., 2008), a large-scale regional personality dataset that contains information for 1,855,306 people. These data can be regarded as "generally representative of the population at large" (Rentfrow et al., 2008, p. 348). The authors of the project provided us with the regional means for the 50 MSAs covered in our study. The MSA averages of our sample correlated with the results of this reference sample, at $r(48) = .34, p < .05$, for conscientiousness and $r(48) = .73, p < .05$, for religiosity. As a further robustness check, we conducted our main analysis with the reference data instead of our own data. The results were similar for both datasets.

Data description. Figure 1 provides an overview of the distribution of our data across the U.S. The map for conscientiousness shows a pattern similar to that found by Rentfrow and colleagues (2008): The regions in the south and southeast of the United States show the highest

levels of conscientiousness. For religiosity, we found high values in the MSAs that lie in the Bible Belt of the USA, with the highest levels for the regions *Memphis* and *Dallas-Fort Worth-Arlington*, commonly known as the “buckle” of the Bible Belt (Garcia & Kruger, 2010; Stacey & Shupe, 1982). Table 1 presents the correlations, means and standard deviations of the study variables on both individual and regional level.³

Main Results

Test of Hypothesis 1. Figure 2 presents the regional-level means and confidence intervals of the study variables for the 50 MSAs. There are significant differences between the MSAs in individual faking intentions, $F(49, 4810) = 2.252, p < .01, \eta^2 = .022$, see also Figure 2, row 1. The regional grouping of faking intentions (within MSAs) explained 1.2% of the total variance of our dependent variable, $ICC(1) = .012$. This corresponds to an effect size expected from similar cross-country studies (Bryan & Jenkins, 2016) and satisfies the requirements for accurate model estimations (Bell, Morgan, Schoeneberger, Kromrey, & Ferron, 2014; Stegmueller, 2013). The comparison between a simple regression model and a multi-level regression model showed that a multi-level model can explain our data significantly better, $likelihood\ ratio(1) = 21.36, p < .01$. Taken together, these results support Hypothesis 1 and also indicate that a multi-level approach is appropriate for further analysis (Bliese, 2002; Hox, 2010).

Test of the other hypotheses. We followed recommendations from the multi-level analysis literature (Hox, 2010; Steele, 2008), and all analyses were performed with R 3.5.1 (R Core Team, 2018) and the package LME4 (Bates et al., 2018). To examine effects of both individual- and regional-level antecedents on individual faking intentions in one model, we

³ In this correlation matrix, the high positive correlation between macro-psychological religiosity and the regional crime rate is noticeable. Additional analyses showed that the regional poverty rate is a strong covariate in this context and that the relationship can be partially traced back to this covariate (partial correlation controlling for regional poverty rate = .36, $p < .05$).

centered individual predictors by regional group mean scores (i.e., group mean centering). The effects of group-mean centered predictors represent relationships between applicants' individual predictor scores and faking intentions within a region. The regional predictors were later introduced into the model as regional-level effects. These effects represent relationships between the mean predictor score in a region and faking intentions of an average applicant from that region. In addition, we centered all regional-level values by the total mean (grand mean centering) to make regression models easier to interpret. To prevent over-parameterization of the models, we built and tested them in a step-by-step approach. To ensure comparability of the models, all models were calculated using maximum likelihood estimation.

The first step was a random intercept model for individual faking intentions ($AIC = 10904.51$, $Deviance = 10898.51$). In this and all subsequent models, the mean faking intentions in the different regions (MSAs) was treated as a random effect and was allowed to vary between regions. In a second step, we included individual-level predictors ($AIC = 9414.46$, $Deviance = 9402.46$). In a third step, the model was further extended to include regional-level predictors ($AIC = 9383.62$, $Deviance = 9364.62$) and predicted individual-level faking intentions significantly better than model 1, likelihood ratio(3) = 1496.05, $p < .01$, and model 2, likelihood ratio(5) = 37.85, $p < .01$. Model 3 explained 27.3% of the total variance in faking intentions. We also ran additional models with random slopes calculated for the regions, in which regression coefficients for individual-level predictors were allowed to vary between regions. These models did not demonstrate a better fit to the data.

In a final step, we recalculated model 3 using Restricted Maximum Likelihood Estimation, which leads to more conservative and less error-prone estimations of the parameters (Raudenbush & Bryk, 2002; Snijders & Bosker, 1999). As the use of confidence intervals and p -

values in multi-level analyses is somewhat controversial (Kuznetsova, Brockhoff, & Christensen, 2017), we employed the most conservative approaches to calculate these parameters: the Kenward-Roger approach to calculate two-tailed p -values and parameter bootstrapping to calculate confidence intervals (Luke, 2017). Our hypotheses (H₁ – H₉) were tested with an alpha level of .05. The test power for the research questions (RQ₁ - RQ₃) is considerably limited by the number of MSAs ($k = 50$) in our data set. Therefore, we use a more liberal alpha level of .10 to avoid overlooking interesting findings for these questions. Accordingly, effects with a p -value $< .10$ can be regarded as supporting our regional research questions.

The final model is shown on the left side Table 2. At the individual level, our results suggest significant effects of conscientiousness ($\beta = -.17$, standardized $\beta = -.20$, $p < .001$), competitive worldviews ($\beta = .55$, standardized $\beta = .55$, $p < .001$), and religiosity ($\beta = -.01$, standardized $\beta = -.03$, $p < .05$). In other words, applicants with higher religiosity and conscientiousness but lower competitive worldviews reported lower faking intentions. These results support all of our individual-level hypotheses (Hypotheses 4, 6 and 8). At the regional level, we found significant relationships between macro-psychological conscientiousness and average faking intentions ($\beta = -.41$, standardized $\beta = -.04$, $p < .05$) as well as macro-psychological competitive worldviews and average faking intentions ($\beta = .77$, standardized $\beta = .11$, $p < .001$). On average, applicants from regions with a higher macro-psychological conscientiousness reported lower faking intentions, whereas those from regions with higher macro-psychological competitive worldviews reported higher intentions, supporting Hypotheses 5 and 6. However, we found no effects for macro-psychological religiosity ($\beta = .04$, standardized $\beta = .02$, $p = .30$), economic development ($\beta = .01$, standardized $\beta = .01$, $p = .75$),

or crime rate ($\beta = .00$, *standardized* $\beta = .00$, $p = .83$) in a region. Hypotheses 2, 3, and 9 were thus not supported.

The next step was to examine our research question: Can regional effects only be attributed to individual-level effects aggregated at the regional level or is there a contextual effect of the region in which people live? To evaluate such contextual effects, we re-centered the individual-level predictors by their overall mean score (grand mean centering) and re-fitted our final model. This procedure has no influence on the model fit of the final model or on the estimation or interpretation of the individual-level effects (Fielding, 2010; Kreft, de Leeuw, & Aiken, 1995). However, in this new model, the estimates for the regional-level effects represent the relationship between faking intention and macro-psychological conscientiousness, competitive worldviews and religiosity controlling for individual characteristics. The right part of Table 2

Final model with and without Contextual Effects shows the results of this grand-mean centered model. There was no longer a significant association of individual faking intentions with conscientiousness ($\beta = -.24$, *standardized* $\beta = -.02$, $p = .21$) or religiosity ($\beta = .05$, *standardized* $\beta = .03$, $p = .19$) at the regional level. Consequently, there is no evidence of contextual effects of conscientiousness (Research Question 1) or religiosity (Research Question 3). For competitive worldviews, the results suggested a significant effect at the regional level ($\beta = .22$, *standardized* $\beta = .03$, $p = .07$). These results support a contextual effect of macro-psychological competitive worldviews that goes beyond the association stemming from the individual level. In summary, applicants from a region with higher macro-psychological competitive worldviews have, on average, higher faking intentions (Hypotheses 6), and this effect can be partly attributed to the individual-level relation between competitive worldviews and faking intentions. However, an

effect of the macro-psychological competitive worldviews also emerges when controlling for the individual-level effect (Research Question 2). In other words, a person with a given competitive worldviews score will, on average, have higher faking intentions if he or she lives in a region with higher mean competitive worldviews.

In a final step, we investigated how much of the variance in faking intentions between the 50 MSAs (see Hypothesis 1) can be explained by our regional predictors. When adding all five regional-level predictors, the variance between MSAs on our dependent variable dropped by 65.6% - from $ICC(1) = .012$ to $ICC(1) = .004$. A successive comparison of models, each with a single regional variable, revealed that macro-psychological competitive worldviews is by far the strongest predictor of regional faking intentions and can explain 64.2% of the variance alone⁴.

Discussion

Our study is the first to demonstrate regional differences in faking intentions: Applicant's environment significantly contributes to their faking intentions. This finding complements cross-country research (e.g., by Fell et al., 2016; Sandal et al., 2014) and shows that differences found between applicants of various regions of the world also exist on a much smaller regional level, i.e. within a country and a shared national cultural and institutional framework. Such differences are also consistent with previous socioecological psychology research, for instance about personality, attitudes, and behaviors (e.g., Audretsch et al., 2017; Gebauer et al., 2014; Rentfrow et al., 2008). However, individual differences between applicants account for the majority of the overall variance in faking intentions, which is in line with the majority of faking theories.

⁴ To examine the stability of the results across faking types, additional analyses were also conducted for both sub facets of the faking intention scale (Levashina & Campion, 2007). Results for "slight image creation" were identical to those presented in Table 2. Results were also very similar for "extensive image creation" but highlighted additionally significant contextual effects of conscientiousness and religiosity. Overall, the same conclusions were obtained for overall faking intentions and for both sub facets of faking intentions. For instance, regional competitive worldviews were always by far the regional predictor explaining the most variance (~50% - ~80%) on the regional level. Detailed results are available from the authors upon request.

Concerning individual-level predictors, we replicated effects observed in previous studies for conscientiousness (Lester et al., 2015; Roulin & Krings, 2016) and competitive worldviews (Roulin & Krings, 2016). In accordance with previous studies on unethical or dishonest behaviors (Allmon et al., 2000; Norenzayan & Hansen, 2006), we found that applicants' religiosity – a factor so far overlooked in applicant faking research – was negatively associated with faking intentions.

Theoretical Implications

The substantial relationships between macro-psychological conscientiousness and competitive worldviews in a region and the corresponding average faking intentions of applicants from that region indicate that there is a whole class of parameters associated with faking that has not yet been considered. While past research showed that faking is related to individual-level conscientiousness (e.g., Buehl & Melchers, 2017; Lester et al., 2015) and competitive worldviews (e.g., Roulin & Krings, 2016), our study found similar effects when aggregated on a regional level, according to macro-psychological characteristics. Our non-significant findings regarding more objective regional indicators, like the economic situation in a region, are aligned with findings from cross-cultural faking research which reported effects for cultural values and norms but not for economic factors such as the unemployment rate of a country (Fell et al., 2016; Sandal et al., 2014). In view of other socioecological psychology research, which has regularly demonstrated an impact of regional factors on regional behavior trends (e.g., Block et al., 2018), it might seem surprising that we found no effects for faking. Our findings can potentially be explained by differences in social safety nets between the regions, which may moderate the link between unemployment and faking (Fell & König, 2016). Another possible explanation is that a region's abstract economic situation and crime rate are still too far-

removed from people's everyday lives. Serious criminality or a fragile economy in a region may only be sufficient to trigger unethical behaviors like faking if an applicant is directly affected by the consequences (e.g., if relevant jobs are scarce).

In our analyses, we found a contextual effect of competitive worldviews on individual faking intentions, which was a purely regional effect. In contrast to conscientiousness, the relationship between macro-psychological competitive worldviews and faking intentions of an average applicant from a region cannot be explained solely by cumulating the effect from the individual level: Someone with a given level of competitive worldviews will, on average, have higher faking intentions if he or she lives in a region with higher mean competitive worldviews. To date, such contextual effects have – if at all – mainly been shown in educational research (e.g., Chiu & Chow, 2015), and the present study is the first to demonstrate contextual effects in the field of I/O psychology.

This contextual effect can potentially be explained by the fact that a high macro-psychological level of competitive worldviews might be salient for all inhabitants of a region. If many people in a region have a rather competitive view of the world, this should be reflected in the fact that many people behave more competitively. As a result, perceived competition for resources (such as jobs) will, on average, be fiercer in this region than in other regions, regardless of the actual regional economic situation. Residents of this region are more often exposed to a dog-eat-dog mentality of others and in order to succeed in such an environment, they are forced to act competitively as well, irrespective of their own attitude toward competition. Competition is particularly salient in selection processes, as there are usually many competitors (applicants) for very limited resources (jobs). In such a situation, applicants from a region with a high macro-psychological level of competitive worldviews should assume that the

other applicants will do whatever it takes to be successful. Consequently, they should also jump on the bandwagon and use every opportunity to gain an advantage, including faking in a selection interview.

This explanation for the contextual effect of competitive worldviews mentioned here can also be easily embedded into previous faking theories. For example, the “dynamic model of applicant faking” proposed by Roulin et al (2016) explicitly mentions “perceived competition” as an influencing factor of faking. According to these authors, this factor causes applicants to believe that NOT faking will lead to a competitive disadvantage because everybody else is using such a tactic. The contextual effect of competitive worldviews on faking can thus be seen as an expression of the perceived competition in a region.

Future Research Directions

Our promising results as well as the findings from Jiang and Probst (2017) demonstrate that a social-ecological research approach can be fruitful in I/O psychology research. We therefore hope to pave the way for further research that takes into account regional differences. The presence of contextual effects highlights a category (or level) of predictors that should not be ignored in I/O psychology research. In the context of selection or assessment, for example, meaningful regional differences in applicants’ traits and attitudes may also lead to different criterion-related validities for selection procedures. Future research could also examine organizations’ perspectives with regard to regional differences in faking. For instance, do hiring managers believe that applicants from certain regions are more or less willing to fake? And are these beliefs in alignment with the “real” regional distribution of faking intentions? Future research could also specifically examine the effect of individual-level variables in regions that differ on the regional level (e.g., faking intentions for individuals with low competitive

worldviews in a high-competitive worldviews region and vice-versa) or different effects depending on applicants' status (e.g., unemployed vs. employed).

A further prospect for future research is to focus on the influence of competitive worldviews, which were an important predictor of faking in the present study. However, selection situations are just one of many competitive situations in everyday working life. Similar effects of competitive worldviews may be expected, for instance, in terms of fighting for promotion or achieving sales goals. In this context, it would also be interesting to investigate whether competitive worldviews affect only behavior or also the resulting work performance. People who are used to fighting with no holds barred may not automatically reach their goals faster or better. Furthermore, future studies should look at whether competitive worldviews are associated with the experience of stress at work. Potentially, employees with higher competitive worldviews may experience less stress in competitive work situations, as they often see themselves under competitive pressure and are therefore accustomed to it.

Implications for Personnel Selection

Given the assumption that many companies recruit their personnel from different regions of a country (Ruhs & Anderson, 2010), these companies should be aware of existing regional differences in faking intentions (i.e., applicants from certain regions have higher faking intentions than applicants from other regions). In extreme cases, such systematic differences between applicants from different regions in terms of attitudes and intentions regarding faking could lead to corresponding distortions of personnel selection decisions. However, while the differences we found in this study were significant, the size of regional effects was rather small (1.2% of empirical variance; $\eta^2 = .022$). Such effect sizes are similar to previous socioecological psychology research (Bryan & Jenkins, 2016). And, individual faking intentions can be

attributed to a much larger extent to applicants' individual characteristics (26.1% of empirical variance). Therefore, organizations concerned with applicant faking might be better advised to focus on these individual factors. Moreover, it is important to emphasize that regional differences are complex in nature and that their effects can only be fully understood if the underlying sociodemographic and macro-psychological differences are taken into account. In accordance with recommendations of Bartunek and Rynes (2010) regarding the formulation of practical implications, and in view of the sparse research in this area, we would therefore strongly advise against a direct consideration of the assumed regional differences in applicant faking (e.g., by introducing a penalty system for applicants from regions that are on average prone to faking).

Regarding the individual determinants, our findings provide additional evidence for the central role played by competitive worldviews for applicant faking. In line with Roulin and Krings (2016), we therefore recommend that organizations play down the competitive aspects of selection when addressing applicants (instead of emphasizing them for instance). In addition, because competitive worldviews are particularly relevant in situations when competition between individuals is made salient, it might be best to ensure that applicants are not assessed together in the same location. For instance, organizations could schedule interviews so that applicants for a particular position do not meet while waiting. Alternatively, online video interviews may be another way to address this issue for companies interviewing applicants from across the country. Video interviews may not only make competition less salient and thus reduce applicants' faking, but they can reduce travel costs and time losses for applicants, which may also increase the applicant pool for the hiring organization.

Limitations

Four main limitations of the present study need to be mentioned. First, we measured applicants' faking intentions and not their faking behaviors. Although faking intentions are widely seen as a direct precursor of actual faking behaviors (McFarland & Ryan, 2006; Roulin & Krings, 2016), future research should examine faking behaviors in this context. This could be done, for instance, using subtle or indirect approaches to capture faking, such as overclaiming questionnaires or bogus items. Second, due to the limited number of MTurk workers in smaller MSAs, we had to focus on the 50 largest MSAs. Therefore, systematic differences in faking between MSAs of different sizes cannot be excluded. In this case, our data may be range restricted and we may therefore underestimate the regional effects on faking. Future research should therefore also try to collect data in small regions. Third, we evaluated our research questions (RQ₁ - RQ₃) based on a more liberal alpha level of .10, which may increase the chances of a type I error. This was justified by the exploratory nature of these questions and the limited test power due to the small number of MSAs ($k = 50$) (see Bradley and Brand 2013 for an overview of expected alpha values as a function of sample size, effect size and power). Yet, these findings should be replicated in future research. Fourth, the data collection via MTurk also constitutes a possible limitation of our study. Researchers have raised arguments both for (e.g., Buhrmester, Kwang, & Gosling, 2011; Hauser & Schwarz, 2016; Landers & Behrend, 2015) and against (e.g., Chandler & Paolacci, 2017; Hydock, 2018; Sharpe Wessling et al., 2017) the use of MTurk for data collection. Although we cannot completely eliminate low-quality responses, we did take the most sophisticated precautions to address potential problems: We also rigorously screened for careless responders (Huang et al., 2014) and outliers (Aguinis et al., 2013; Becker & Gather, 1999). In addition, to the best of our knowledge, this is the first study to use an IP-based geo-blocking system to eliminate shortcomings concerning the regional representativeness of the

MTurk sampling process. Another limitation of our study might result from our operationalization of religiosity by a one-item scale. Although the corresponding item is an established (Rentfrow et al., 2008) measure of religiosity, such one-item scale are not without criticism. Future research should use longer religiosity scales, for instance the Duke Religion Index (Koenig et al., 1997), without corresponding methodological limitations.

Conclusion

This study attempted to introduce a socioecological psychology approach to the field of I/O psychology, and specifically to faking in job interviews. We examined inhabitants from various major regions of the U.S., thereby extending cross-cultural faking research by focusing on regions within countries. We found differences between applicants from various regions not only for faking but also for other selection-relevant characteristics like competitive worldviews. Finally, we call for further I/O research following a socioecological psychology approach as well as deeper exploration of the construct of competitive worldviews and its role in the workplace.

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Figure 1. Maps of regional means.

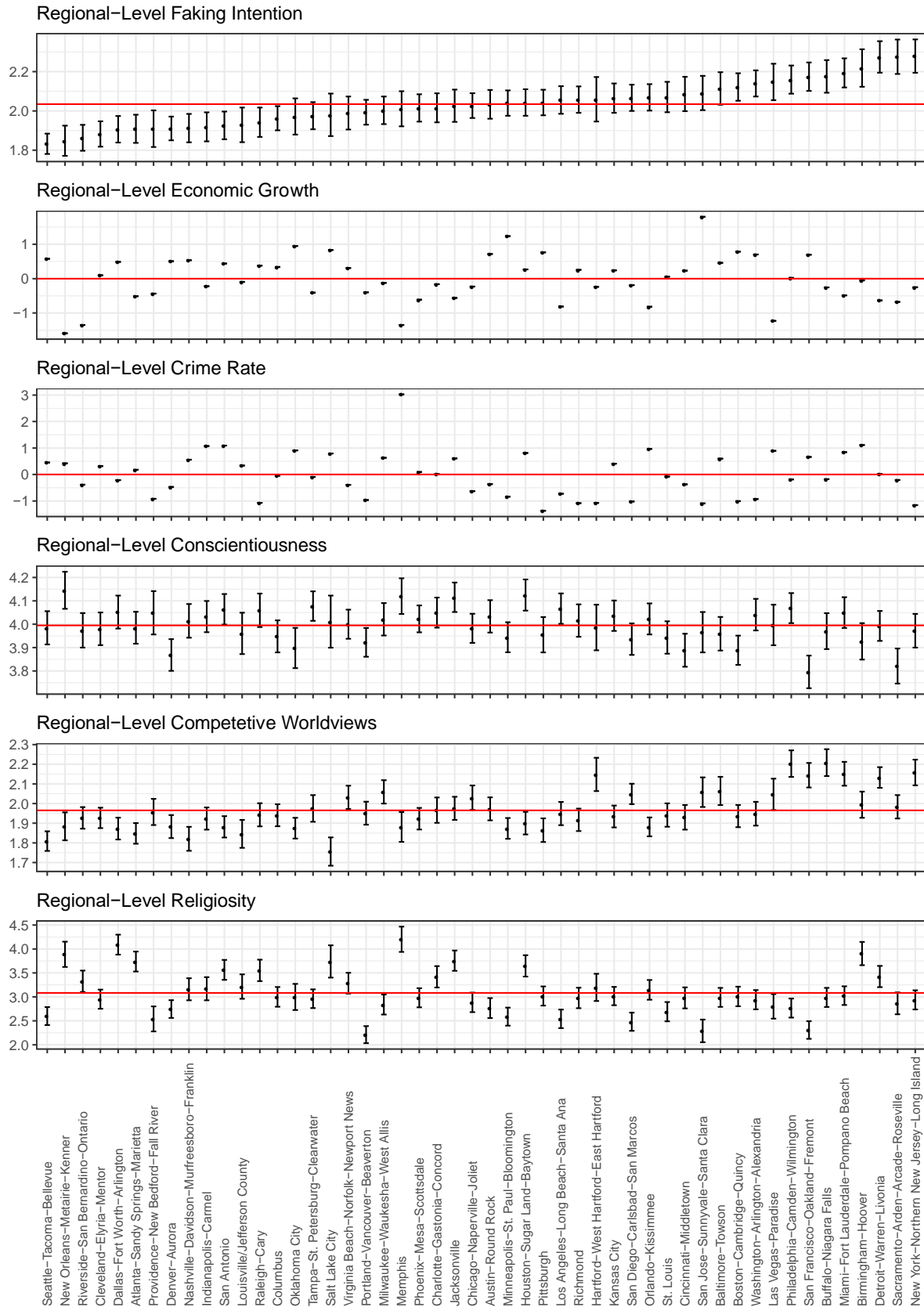


Figure 2. Means and confidence intervals for all 50 Metropolitan Statistical Areas.

Table 1
Means, Standard Deviations, and Correlations among Main Variables

Variable	<i>M (SD)</i>	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
Individual-level variables												
1. Faking intentions	2.04 (0.74)	(.92)										
2. Conscientiousness	3.99 (0.70)	-.27**	(.86)									
3. Competitive worldviews	1.97 (0.61)	.49**	-.23**	(.91)								
4. Religiosity	3.07 (2.15)	-.12**	.17**	-.14**	-							
5. Age	34.42 (10.70)	-.23**	.18**	-.23**	.14**	-						
6. Gender	0.57 (0.50)	-.18**	.09**	-.30**	.15**	.08**	-					
Regional-level variables												
7. Faking intentions	2.03 (0.11)	.15**	-.03	.12**	-.04**	-.06**	-.07**	-				
8. Economic situation	-	-.01	-.03*	-.03	-.05**	-.03*	.00	-.01	-			
9. Crime rate	-	-.02	.03*	-.02	.09**	.03*	.04*	-.10	-.29*	-		
10. Conscientiousness	3.99 (0.07)	-.04*	.10**	-.02	.10**	.03*	.03*	-.30*	-.34*	.27	-	
11. Competitive worldviews	1.97 (0.10)	.10**	-.01	.17**	-.06**	-.05**	-.06**	.68**	-.14	-.20	-.12	-
12. Religiosity	3.08 (0.46)	-.03	.05**	-.05**	.21**	.01	.05**	-.20	-.28*	.49**	.49**	-.31*

Note. The numbers in the diagonal represent Cronbach's alpha of the scales. The correlations under the columns 1 – 5 are based on individual-level data with a sample size of $N = 4860$. The correlations with Gender are based on $N = 4851$ and were calculated as polyserial correlations. Gender coding: 0 = males, 1 = female. The correlations under the columns 7 – 11 are based on regional-level data with a sample size of $N = 50$. * $p < .05$, ** $p < .01$. Our data showed no differences in faking intention across races. The correlations between all individual-level variables included in this study were also consistent across races.

Table 2
Final model with and without Contextual Effects

	Final model without contextual effects				Final model with contextual effects			
	β	<i>CI</i>	<i>stand. β</i>	<i>p</i>	β	<i>CI</i>	<i>stand. β</i>	<i>p</i>
Regional Level								
(Intercept)	2.04	2.02 – 2.06		<.001	2.04	2.02 – 2.06		<.001
Economic situation	0.01	-0.02 – 0.04	0.01	.749	0.01	-0.02 – 0.04	0.01	.749
Crime rate	0.00	-0.02 – 0.03	0.00	.830	0.00	-0.02 – 0.03	0.00	.830
Conscientiousness	-0.41	-0.71 – -0.09	-0.04	.034	-0.24	-0.54 – 0.09	-0.02	.214
CWs	0.77	0.60 – 0.98	0.11	<.001	0.22	0.04 – 0.43	0.03	.074
Religiosity	0.04	-0.02 – 0.09	0.02	.302	0.05	-0.01 – 0.10	0.03	.188
Individual Level								
Conscientiousness	-0.17	-0.20 – -0.15	-0.16	<.001	-0.17	-0.20 – -0.15	-0.16	<.001
CWs	0.55	0.52 – 0.58	0.44	<.001	0.55	0.52 – 0.58	0.45	<.001
Religiosity	-0.01	-0.02 – -0.00	-0.03	.021	-0.01	-0.02 – 0.00	-0.03	.021
N_{MSA}					50			
Observations					4860			
<i>Marginal R²</i>					.273			
<i>Conditional R²</i>					.277			
AIC					9438.352			
Deviance					9364.985			

Notes. The model on the left is based on group mean centered individual-level variables; the model on the right on grand-mean centered individual-level variables. *Stand. β* = *standardized β* ; *CI* = .90% bootstrapped confidence intervals based on 1,000 samples. CWs = competitive worldviews; AIC = Akaike information criterion. *p* = two-tailed 5% *p*-values bases on Kenward-Roger's approach; *p*-values below the 5% criterion for our hypotheses (H_1 - H_9) and below the 10% criterion for our research questions (RQ₁ - RQ₃) are printed in bold.