

# Protean and Boundaryless Career Orientations: A Critical Review and Meta-Analysis

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The protean/boundaryless career concepts refer to people becoming more self-directed and flexible in managing their careers in response to societal shifts in work arrangements. A sizable literature has emerged on protean/boundaryless career orientations/preferences (PBCO). Questions remain, however, about the structure of PBCO and whether they predict important criteria. The PBCO literature is largely disconnected from broader individual-level career research, making it unclear how PBCO intersect with career models based on other characteristics. We address these questions by systematically reviewing/meta-analyzing PBCO research. On the basis of 135 demographically/occupationally diverse samples from 35 countries (45,288 individuals), we find no support for traditional distinctions between protean and boundaryless orientations—protean self-directed, protean values-driven, and boundaryless psychological mobility all load onto a single general factor, labeled *proactive career orientation*, and are only weakly related to boundaryless physical mobility preferences. We also find that PBCO predict career self-management behaviors and career satisfaction but are less related to non-career-focused attitudes, objective success, or physical mobility behavior. PBCO are strongly related to proactivity-related and self-efficacy personality traits. We use these findings to propose an integrative model for how PBCO and other dispositions mutually influence career behavior. We discuss when PBCO may have advantages over broad traits for understanding careers, implications for counseling practice, and directions for future research.

### Public Significance Statement

People with a *proactive career orientation* (taking charge of their careers) report higher career satisfaction and self-management behavior. Much of proactive career orientation's explanatory power is shared with personality traits, but proactive career orientation may be easier to change through counseling interventions than broad traits.

**Keywords:** protean career orientation, personality, boundaryless career orientation, career satisfaction, meta-analysis

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Over the last five decades, broad societal and economic shifts have had important impacts on how individuals must approach their careers and relate to their employers (Sullivan & Baruch,

2009). Globalization and rapidly changing technologies have reduced job security and demanded that employees flexibly manage fluid job demands (Hall, 2004; Lepine, Colquitt, & Erez, 2000; Savickas et al., 2009). Psychological contracts between organizations and employees have become more transactional, leaving individuals less able to rely on their employers for resources, lifelong employment, or opportunities for advancement (Hall, 1996; Sturges, Conway, Guest, & Liefvooghe, 2005). Individuals who are better able to adapt to these unstable circumstances experience better career outcomes (Sullivan & Baruch, 2009).

Career researchers have examined a range of adaptive behavioral patterns that have emerged in response to increased employment volatility. Two of the most widely studied adaptive career forms are the boundaryless career (Arthur & Rousseau, 1996) and the protean career (Hall, 1976, 1996). The *boundaryless career* refers to career paths wherein individuals respond to decreased organizational resources by seeking resources or opportunities from outside their current employer, such as by changing employers or building an external professional network (Arthur, 2014; Arthur & Rousseau, 1996). The *protean career* refers to individ-

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uals taking responsibility for managing their own careers and making career decisions based on personal values, rather than organizational demands or merely to obtain material rewards (Briscoe & Hall, 2006; Hall, 1996). The protean and boundaryless career concepts have generated massive research literatures (the seminal books and articles introducing these concepts have been cited more than 7,000 times). Career researchers have studied the impact that behaviors associated with protean and boundaryless careers (e.g., career self-management behaviors; Z. King, 2004; frequency of changing employers; Dries, Pepermans, & Kerpel, 2008) have on a variety of criteria, such as career satisfaction and objective success. Numerous researchers and practitioners have also considered how incorporating protean and boundaryless career concepts can improve career counseling practice (Hall, Las Heras, & Shen, 2009; Taber & Briddick, 2011; Verbruggen & Sels, 2008).

One area of research on protean and boundaryless careers focuses on individual differences in preference for or orientation toward these career forms. Such preferences are referred to as *protean and boundaryless career orientations* (PBCO; Baruch, Bell, & Gray, 2005; Briscoe, Hall, & DeMuth, 2006; Drenzo, Greenhaus, & Weer, 2015; Dries & Verbruggen, 2012). Protean career orientation is conceptualized and measured using two facets: preferences to be (1) *self-directed*—responsible for one's own career decisions—and (2) *values-driven*—making choices and evaluating success based on a set of personal values rather than on standards set by the organization or others (Briscoe & Hall, 2006; Hall, 2004). Likewise, boundaryless career orientation is also conceptualized with two components. The first, *psychological mobility*, is a desire for variety in one's work environments and confidence in one's ability to transition between such environments (Sullivan & Arthur, 2006). The second, *physical mobility preferences*, is a preference to frequently move between employers or, in some conceptualizations of this construct, between occupations or locations (Gubler, Arnold, & Coombs, 2014a).

Adopting protean or boundaryless career orientations is posited to have numerous benefits for individuals (Drenzo et al., 2015; Hall, 2004). First, on the basis of theories of attitudes as antecedent to behavior (cf. Ajzen, 1991), researchers hypothesize that individuals with protean and boundaryless career orientations perform more adaptive behaviors characteristic of the protean and boundaryless career forms (e.g., career self-management, organization switching; De Vos & Soens, 2008). Individuals holding PBCO attitudes should, therefore, be more likely to reap benefits purportedly associated with a protean or boundaryless career path (e.g., career satisfaction). Second, career researchers have also argued that PBCO reflect an overall psychologically healthy response to uncertain career environments (Arthur & Rousseau, 1996; Waters, Briscoe, & Hall, 2014). They argue that the adaptive mindsets associated with PBCO directly benefit career outcomes by helping individuals to better cope with their career experiences. Based on this reasoning, researchers have advocated for promoting adoption of protean and boundaryless orientations as part of the career counseling process (Taber & Briddick, 2011; Verbruggen & Sels, 2008; Waters et al., 2014). The PBCO constructs are becoming increasingly popular, and the literature has grown to such a degree that narrative reviews focused solely on these constructs are now emerging (Gubler, Arnold, & Coombs, 2014b; Hall, Yip, & Doiron, 2018; Waters, Hall, Wang, & Briscoe, 2015).

## Contributions of the Current Study

Despite the growth the protean and boundaryless career orientation literature, lingering questions remain about the nature of these constructs and whether and how they can contribute to our understanding of career behavior. In this study, we conducted the first systematic review and meta-analyses of PBCO research to address three critical questions about these widely studied career constructs.

First, there remains controversy about the relationship between protean career orientation and boundaryless career orientation. Many researchers treat them as essentially isomorphic constructs with a shared underlying structure (e.g., Segers, Inceoglu, Vloeberghs, Bartram, & Henderickx, 2008), whereas others regard them as related, but distinct (Briscoe & Hall, 2006). Identifying construct structure is critical for effective measurement and theory-building, but no study to date has systematically evaluated patterns of correlations among protean and boundaryless career orientation components. Therefore, our first research question concerns relations among PBCO components and the form of their underlying structure.

Second, a comprehensive review is also missing of the validity of protean and boundaryless career orientations for predicting important career outcomes. Several studies have reported positive findings (e.g., Baruch, 2014), but it is as yet unclear whether these orientations have replicable and generalizable validity for satisfaction, mobility, extrinsic success, and other criteria of interest to individuals, organizations, and career researchers (Wiernik & Wille, 2018). Thus, the criterion-related validity of PBCO is our second research question.

Third, research and theoretical development on protean and boundaryless career orientations has been largely unconnected to broader models and research on individual-level drivers of career behavior and success (Wiernik & Wille, 2018). As a result, it is unclear how PBCO intersect with models of career behavior based on other dispositional characteristics (Lent, 2013; Ng, Eby, Sorensen, & Feldman, 2005; Seibert, Kraimer, & Crant, 2001). Thus, our third research question addresses PBCO's nomological net. We use a data-driven meta-analytic approach to examine PBCO relations with key dispositional traits in career research—the Big Five personality traits, self-efficacy, and proactive personality—and to build an integrative model of how these various dispositions are connected and mutually influence career outcomes. We further examine whether PBCO incrementally predict career outcomes beyond more well-established constructs. A key concern in this study is that, while we do not dispute the importance of studying career management and mobility behaviors, we identify a need to investigate whether measures of preferences for or orientations toward protean and boundaryless careers provide unique contributions for understanding career outcomes.

## Structure of Protean and Boundaryless Career Orientations

The first goal of our study is to clarify the empirical distinction between protean and boundaryless career orientations. This is a necessary first step for establishing construct validity. Proponents of PBCO often maintain that these are related but distinct constructs (Briscoe & Hall, 2006; Briscoe et al., 2006; cf. Gubler et

al., 2014b; Inkson, 2006). However, many career researchers treat protean career orientation and the psychological mobility component of boundaryless career orientation as synonyms (e.g., Greenhaus, Callanan, & DiRenzo, 2008; O'Sullivan, 2002; Segers et al., 2008). The essence of this perspective is that the factors that might be expected to underpin protean orientation are the same as those that would be important for psychological mobility orientation. For example, openness to new work experiences is necessary for both self-directed pursuit of novel opportunities as well as psychological mobility as defined by Sullivan and Arthur (2006) or Briscoe et al. (2006). During the initial development of their PBCO scales, Briscoe et al. (2006) observed consistent positive correlations between protean orientation and psychological mobility ( $r$  ranged .27 to .61), and subsequent studies have generally found similar results. Given the conceptual overlap of protean career orientation and psychological mobility and previous empirical findings, we expect these constructs to be highly correlated.

*Hypothesis 1a:* Protean self-directed and protean values-driven are strongly positively related to psychological mobility.

The conceptual distinction is clearer between protean career orientation and the physical mobility preferences component of boundaryless career orientation. Whereas changing employers is one way through which individuals can manage their career direction (protean self-directed; Seibert et al., 2001) and choice of organization is a key way individuals express their values (protean values-driven; Schneider, 1987), many alternative methods of career self-management are also possible (Dawis & Lofquist, 1984; Z. King, 2004). Further, once an individual enters an organization that meets their development needs and values, they may be less likely to leave (Hall, 2002). Briscoe et al. (2006) observed inconsistent relations between protean orientations and physical mobility preferences ( $r$ s range =  $-.21$  to  $.21$ ), and later studies have also reported variable relations. Accordingly, we expect organizational mobility preferences to be overall weakly related to protean career orientation.

*Hypothesis 1b:* Organizational mobility preferences are weakly related to protean self-directed and protean values-driven.

Finally, Sullivan and Arthur (2006) and Drenzo and Greenhaus (2011) both characterized physical changes in employment situations as relatively independent of psychological mobility. Correlations between psychological mobility and physical mobility preferences have also been variable across studies. As such, we also expect overall weak relations between physical organizational mobility preferences and psychological mobility orientation.

*Hypothesis 1c:* Organizational mobility preferences are weakly related to psychological mobility.

### Impact of PBCO on Career Behavior and Outcomes

Protean and boundaryless career orientations are argued to contribute to numerous important career and work criteria, including proximal criteria such as career self-management behaviors (De Vos & Soens, 2008), as well as more distal outcomes, such as career satisfaction (Waters et al., 2015) and interorganizational mobility (Gubler

et al., 2014a). In this study, we examine associations of PBCO with both criteria that are central to protean and boundaryless career theories (e.g., career self-management, career satisfaction), as well as other criteria that, while hypothesized to be more tangentially connected to PBCO, are key criteria for career researchers and for individuals and organizations seeking guidance for career management practice (e.g., objective career success; Hall, 2002; Ng et al., 2005). Consistent with our predictions of strong relations among protean self-directed, protean values-driven, and psychological mobility orientations (Hypothesis 1a), we expect these constructs to show similar patterns of criterion-related validity.

**Career management behaviors.** The central tenet of protean career orientation is that individuals desire to take charge of managing their own career development. Accordingly, the most proximal hypothesized criterion for protean career orientation is engagement in various career self-management behaviors. Protean orientation has been hypothesized to contribute to behaviors related to exploring career options and making plans (De Vos & Soens, 2008; Herrmann, Hirschi, & Baruch, 2015), networking (Wolff & Moser, 2009), and participation in training and self-development (De Vos & Soens, 2008; Park, 2008). Similarly, psychologically mobile individuals seek variety in their work experiences and are open to working with new ideas, people, and tasks; psychologically mobile individuals are thus likely to engage in behaviors such as networking and self-development to fulfill these needs (Sullivan & Arthur, 2006). Studies have generally reported substantial positive relations of protean orientations and psychological mobility with career self-management (e.g., Creed, MacPherson, & Hood, 2011). Thus, we predict that these orientations are positively related to career self-management behaviors.

*Hypothesis 2:* Protean self-directed, protean values-driven, and psychological mobility are positively related to career self-management behaviors.

**Career satisfaction.** Protean and boundaryless career orientations have each been hypothesized to correlate with career satisfaction (also called subjective career success; Ng et al., 2005). A key characteristic of the protean careerist is a concern with satisfaction and fulfillment, as opposed to concern only with material rewards and hierarchical advancement (Hall, 1996). Protean career orientation is argued to enhance career satisfaction both indirectly, through behaviors that enhance the meaningfulness of one's work, and directly, by enabling individuals to interpret adverse career events more positively (Waters et al., 2015). Arthur and Rousseau (1996) similarly argued that, in an era of declining job security and increasing economic anxiety, positive attitudes toward new work experiences (psychological mobility) and changing employers (organizational mobility preferences) can help to reduce stress and foster career satisfaction. This proposal is supported by self-determination theory (Ryan & Deci, 2000), which suggests that by exerting control over unpredictable work environments and defining success according to their own standards (Briscoe et al., 2006), individuals with protean and boundaryless career orientations can increase their career satisfaction. Many studies have also reported substantial positive PBCO-career satisfaction correlations (Dries, Van Acker, & Verbruggen, 2012). We therefore hypothesize positive relations between PBCO and career satisfaction.



*Hypothesis 3:* PBCO are positively related to career satisfaction.

**Mobility behavior.** The original and most frequently discussed criterion for boundaryless career orientations is physical mobility behavior, such as changing organizations (DeFillippi & Arthur, 1994). According to the theory of planned behavior, individuals' intentions and attitudes toward behaviors are the best predictors of behavioral performance (Ajzen, 1991; Armitage & Conner, 2001). Several studies have reported small to moderate positive relations between physical mobility preferences and mobility behavior (e.g., Dries et al., 2012; Gubler et al., 2014a; Verbruggen, 2012). Organizational mobility preferences are therefore likely to be among the best predictors of mobility behavior as operationalized through switching organizations.

*Hypothesis 4:* Organizational mobility preferences are positively related to interorganizational mobility behavior.

Theoretical linkages of mobility behavior to protean career orientations and psychological mobility are less clear. Changing organizations is only one way through which individuals can manage their development and seek variety (Z. King, 2004), so relations of these orientations to mobility behavior may be weak or inconsistent across contexts.

**Objective career success.** Although protean career orientation is more commonly associated with prioritizing subjective career success (Hall, 2004), Hall (2002) also suggested that a protean career orientation may contribute to objective career success, including hierarchical level and salary, because protean careerists seek opportunities to develop new work-related competencies and more flexibly adapt to adverse career events. These proactive behaviors may also improve access to social resources and signal potential to supervisors and other career gatekeepers (Fuller, Barnett, Hester, Relyea, & Frey, 2007). Regarding physical mobility, Feldman and Ng (2007) noted that individuals may move between employers as a way to bid up wages and advancement opportunities, so organizational mobility preferences may also be related to objective career success. However, despite potential links of PBCO with objective career success, Ng et al.'s (2005) meta-analysis found that noncognitive traits are generally weakly related to objective career success, with Extraversion and proactive personality showing the largest relations ( $\rho$ s range .10 to .18). Several large studies of PBCO have reported weak relations between PBCO and promotions and salary outcomes (e.g., Baruch & Lavi-Steiner, 2015; Dries et al., 2012). Based on these results, we expect PBCO relations with objective career success to be similarly small.

*Hypothesis 5:* PBCO are weakly related ( $|\rho| \leq .20$ ) to salary and hierarchical level.

**Non-career-focused work attitudes.** Understandably, PBCO research has emphasized career-focused criteria. However, numerous non-career-focused criteria have also been examined as outcomes of PBCO. For example, researchers often use identical arguments to justify PBCO relations with both career satisfaction and job satisfaction (e.g., Verbruggen, 2012). Other studies have examined links between PBCO and turnover intentions. For example, Cerdin and Le Pargneux (2014) argued that the self-focus and desire for new experiences associated with PBCO may lead

employees to feel detached from their organizations and grow bored, making them more likely to intend to quit. Researchers frequently measure these criteria without strong theoretical justification for their relations with PBCO. Both job satisfaction and turnover intentions are work-related attitudes whose target is one's current employment situation, rather than on one's career as a whole. Because PBCO are focused on one's career path, we expect that, although PBCO may be related to job satisfaction and turnover intentions, these relations will be weaker than those for a comparable career-focused attitude, career satisfaction, with which PBCO are more conceptually aligned. This proposition is supported by findings from Cerdin and Le Pargneux (2012, 2014), who found that protean orientations were more strongly linked with career satisfaction than job satisfaction in samples of expatriates, though other studies have found negligible differences between these relations (e.g., Porter, Woo, & Tak, 2016; Verbruggen, 2012).

*Hypothesis 6:* PBCO are more strongly related to career satisfaction than to non-career-focused work attitudes.

### Integrating Models of Career Behavior: The Nomological Network of PBCO

As noted earlier, protean and boundaryless career orientation theory and research is largely separated from other models of the individual-level determinants of career behavior and success. The PBCO constructs have conceptual similarities to several well-established constructs, such as Openness (Connelly, Ones, & Chernyshenko, 2014), proactive personality (Fuller & Marler, 2009), and self-efficacy (Bandura, 1982). Given these similarities, it's not clear whether PBCO models and models based on these other dispositional characteristics (e.g., R. T. Hogan & Kaiser, 2005; Lent, 2013; Ng et al., 2005; Seibert et al., 2001) should be regarded as complementary or competing accounts of career phenomena. There is growing concern about construct proliferation in organizational research (Shaffer, DeGeest, & Li, 2016), so it is critical to determine whether PBCO can provide unique insight into career behavior and outcomes beyond existing psychological characteristics (cf. Cole, Walter, Bedeian, & O'Boyle, 2012; Joseph, Jin, Newman, & O'Boyle, 2015). If existing constructs can account for PBCO-criterion relations, then more parsimonious career theories could be developed by incorporating propositions made regarding PBCO into existing models connecting individual differences to career behavior and outcomes. We hypothesize that two sets of personality trait constructs may account for much of PBCO's relations with career behavior and outcomes—proactivity and self-efficacy.

**Proactivity—Extraversion, Conscientiousness, Openness, proactive personality.** Protean career orientation is described as reflecting agency, initiative, and autonomy in one's career (Hall, 2004). Similarly, psychological and physical mobility are both argued to reflect curiosity about new work experiences and willingness to work in novel ways and contexts (Briscoe et al., 2006; Sullivan & Arthur, 2006). These characteristics are core features of trait proactive personality, described by Seibert et al. (2001, p. 847) as "a stable disposition to take personal initiative in a broad range of activities and situations." Proactive personality is a compound personality trait composed of high levels of the Big Five traits of Conscientiousness,

Extraversion, and Openness (Fuller & Marler, 2009). Conscientiousness is a tendency to maintain goal progress and encompasses traits like industriousness and dependability (Hough & Ones, 2001). Extraversion is a tendency to pursue rewards and, relevant to PBCO, encompasses traits of assertiveness and dominance. The core of Openness is curiosity and willingness to engage with the unknown (Connelly et al., 2014). Together, this proactivity trait complex reflects a general tendency to see novel situations as opportunities and to actively pursue one's goals. Given the similarity of the curiosity and self-directedness tendencies underlying both PBCO and proactivity-related personality traits, we expect strong correlations among these constructs. Briscoe et al. (2006) reported substantial correlations between their PBCO scales and Openness and proactive personality ( $r$ s ranged .11 to .41), and subsequent studies have generally reported similarly strong relations.

*Hypothesis 7:* PBCO are positively related to proactive personality, Conscientiousness, Extraversion, and Openness.

**Self-efficacy.** Definitions of protean and boundaryless career orientations are also similar to definitions of self-efficacy. Compared to traditional single-organization careers, careers where individuals direct their own development (protean careers) or look outside their current employer for validation, resources, or employment opportunities (boundaryless careers) are much riskier and more volatile (Sullivan & Baruch, 2009). Hall (2004) argued that confidence in one's ability to adapt is a key enabling factor for individuals to be willing to face such risks and embrace responsibility for their careers (adopt a protean career orientation). On the basis of Sullivan and Arthur (2006); Drenzo and Greenhaus (2011, p. 576) similarly defined the psychological mobility component of boundaryless career orientation as "the subjective appraisal of one's capacity to make career transitions." These definitions are similar to that of self-efficacy, defined as "judgments of how well one can execute courses of action required to deal with prospective situations" (Bandura, 1982), either generally or for specific tasks (Judge & Bono, 2001a). Baruch et al. (2005) reported a strong correlation between protean career orientation and self-efficacy ( $r = .38$ ), as have numerous other large studies (e.g.,  $r = .19$ ; Höge, Brucculeri, & Iwanowa, 2012;  $r = .56$ ; Lyons, Schweitzer, & Ng, 2015). Accordingly, we also expect PBCO to be positively related to self-efficacy.

*Hypothesis 8:* PBCO are positively related to self-efficacy.

**Incremental validity of protean and boundaryless career orientations.** Meta-analyses have connected self-efficacy and proactivity-related personality traits to each of the criteria considered in this study (Fuller & Marler, 2009; Judge & Bono, 2001b; Judge, Heller, & Mount, 2002; Ng et al., 2005; Ng & Feldman, 2014), and these constructs are central to theoretical models describing how individual characteristics contribute to career development and success (Judge & Kammeyer-Mueller, 2007). Interactional models posit that proactivity drives individuals to exert influence over their work environments to bring about positive changes in their career progressions (Seibert, Crant, & Kraimer, 1999; Seibert et al., 2001; Seibert & Kraimer, 2001), and self-determination and goal theories emphasize the role of self-efficacy and other confidence-related constructs in enabling individuals to set challenging career goals for themselves and to derive satisfac-

tion and fulfillment from goal accomplishment (Abele & Spurk, 2009; Deci & Ryan, 2000; Lent, 2013; Lent & Brown, 2013). Given the conceptual similarity of protean and boundaryless career orientations to proactivity and self-efficacy and the similarity of the mechanisms through which these constructs are posited to influence career criteria, we expect that much of PBCO's predictive power is shared with these personality traits (i.e., that they have little incremental validity).

We expect, however, that PBCO will have more substantial incremental validity for some criteria. PBCO are chiefly concerned with how individuals manage their careers, and the standards they use to evaluate their career progress and success. To some degree, PBCO measures might be regarded as contextualized assessments of proactivity and self-efficacy constructs which are specifically focused on career management behaviors and career attitudes. Individual differences measures are better predictors of behavior when they are contextualized to assess patterns of thinking, feeling, and acting in specific criterion-relevant contexts (Shaffer & Postlethwaite, 2012). Further, extensive research on bandwidth-fidelity tradeoffs (J. Hogan & Roberts, 1996; Ones & Viswesvaran, 1996) and construct correspondence (Ajzen, 1991; Harrison, Newman, & Roth, 2006; J. Hogan & Holland, 2003) has demonstrated that individual differences measures show the strongest criterion-related validities when they are conceptually aligned with the criterion variables. Because PBCO measures are most conceptually aligned with career self-management and career satisfaction criteria, we expect incremental validity to be strongest for these criteria, particularly when compared to non-career-focused attitudes, such as job satisfaction.

*Hypothesis 9:* Incremental validity of PBCO over personality traits is stronger for career satisfaction than for noncareer-focused attitudes.

## Method

### Search Method

Our literature search combined database keyword and targeted bibliometric searches. We ran keyword searches in the Web of Science Social Sciences Citation Index for the phrases *protean career* and *boundaryless career*. We read each of the resulting sources to identify studies containing measures of protean or boundaryless career orientations. To supplement this keyword search, we conducted targeted bibliometric searches of scales measuring protean or boundaryless career orientations. We identified scales for this bibliometric search from articles found in the keyword search and by reading recent reviews of the protean and boundaryless career literatures (Arnold & Cohen, 2008; Arthur, 2014; Feldman & Ng, 2007; Gubler et al., 2014a, 2014b; Hall, 2004; Sullivan & Baruch, 2009). We found a variety of scales measuring PBCO (Baruch et al., 2005; Bridgstock, 2007; Briscoe et al., 2006; Drenzo et al., 2015; Farashah, 2015; Gubler, 2011; Joao, 2010; Kruanak & Ruangkanjanases, 2014; Liberato Borges, 2014; Ma & Taylor, 2003; Otto, Glaser, & Dalbert, 2004; Tabor, 2012; Tian & Han, 2011), with Briscoe et al.'s (2006) scales and Baruch et al.'s (2005) scale being the most common. We searched Google Scholar and ProQuest Dissertations and Theses for studies citing any of these scales. We also searched for relevant studies in

the conference programs for the Academy of Management, American Educational Research Association, and Society for Industrial and Organizational Psychology. Together, the keyword and bibliometric searches yielded 1,209 unique potential sources. Six researchers shared additional unpublished data, working papers, or in press articles for inclusion. Numbers of hits for each search method are given in Figure S1 in the online supplemental material.

### Inclusion Criteria

Each source was read by Brenton M. Wiernik and evaluated for inclusion. To be included, studies needed to (a) report individual-level data on a PBCO measure, (b) report a zero-order correlation between this measure and another studied variable (or enough information to compute a correlation), and (c) report a sample size or sufficient information to compute a standard error. Some studies included PBCO measures, but insufficient information to compute correlations. We contacted study authors for the needed information. Fifty-three authors were contacted for additional information; 36 (68%) responded, most of whom supplied the requested data.

Many potential sources did not meet the inclusion criteria. The most common reasons for exclusion were (a) not including a PBCO measure (350 sources), (b) using qualitative research designs (298 sources), (c) being reviews or theoretical papers (244 sources), and (d) assessing boundaryless careers as objective mobility behavior, rather than as a psychological orientation (e.g., number of employers over time; 48 sources). A complete list of reasons for exclusion is given in Figure S1 in the online supplemental material. Jack W. Kostal reviewed excluded sources' abstracts and methods sections to verify ineligibility (100% agreement).

### Meta-Analytic Sample

After the above exclusions, a total of 151 sources remained that contained usable data for the meta-analyses. Forty-one sources reported results from the same samples as other coded studies (e.g., theses or conference papers published later, follow-ups on longitudinal studies, different variables from the same dataset), leaving 110 unique sources for analysis. Ten sources reported PBCO relations only with variables not included in the current meta-analyses; these samples contributed only reliability coefficients to the current analyses. Altogether, our correlation meta-analyses contain data from 135 unique samples (many sources reported multiple samples) and 45,288 individuals.

The samples contributing to the current meta-analyses come from 35 countries from all 10 GLOBE cultural clusters (House, Hanges, Javidan, Dorfman, & Gupta, 2004). Samples included 105 samples of employed adults, 39 samples of students (studies generally reported that students were employed), three samples of unemployed adults, and one sample of diverse young adults including students and nonstudents. Most samples were relatively well-educated and consisted primarily of people with university-level or higher education (73% of included samples), though a substantial number had heterogeneous educational backgrounds (23% of samples). The average age mean across samples was 33.18 years, and most samples spanned a wide age range (average age standard deviation across samples was 7.46). Sample demographic characteristics are summarized in Table 1. Studies gener-

ally used correlational, cross-sectional designs (90% of included samples), with a small number of studies employing experimental/intervention (1% of samples; Unite, 2014; Verbruggen & Sels, 2008) or longitudinal/predictive designs with follow-up periods ranging from 3 months to 18 months (9% of samples; Dries, 2015; Fleisher, Khapova, & Jansen, 2014; Galais & Moser, 2009; Gubler et al., 2014a; Herrmann, 2013; Lo Presti, 2008; McArdle, Waters, Briscoe, & Hall, 2007; Ng & Feldman, 2015; Supeli & Creed, 2016; Vansteenkiste, Verbruggen, & Sels, 2016; Waters et al., 2014; Woo & Porter, 2017).

### Coding Procedure and Classifying Constructs

Table 2 lists construct definitions and example scales. Each included source was independently coded by both authors to ensure accuracy. For each study, we recorded the country, sampled population (e.g., employee, student, occupational field, etc.), demographic characteristics (gender composition, age and educational distributions), basic study design (cross-sectional, experimental, longitudinal), PBCO measure used, sample size, PBCO effect size, and variable means, standard deviations, and reliability coefficients. Studies written in languages other than English or French were coded with the assistance of Google Translate and consultation with native speakers. PBCO measures were classified independently by both authors (100% agreement) on the basis of which of the four PBCO aspects in Briscoe and Hall's (2006) four-part taxonomy the scale captured. Classifications for all PBCO measures are in Table S1 in the online supplemental material. Where possible, we examined PBCO measure as a moderator of meta-analytic correlations. Brenton M. Wiernik classified other variables using existing construct taxonomies (e.g., Hough & Ones, 2001; Z. King, 2004). Jack W. Kostal resorted variables into construct categories (95% agreement). Disagreements were resolved through discussion.

### Analyses

**Meta-analyses.** We used psychometric meta-analysis (Schmidt & Hunter, 2015) to pool correlations across studies. Psychometric meta-analysis is a random effects meta-analysis model that estimates both the mean effect size and true (nonartificial) variability of effect sizes across studies (see Schmidt, Oh, & Hayes, 2009, for a comparison of psychometric meta-analysis with other meta-analysis procedures). In addition to correcting for sampling error, psychometric meta-analysis can also correct for the biasing effects of other statistical artifacts, such as measurement error and range restriction (Schmidt & Hunter, 2015). In the present study, we corrected for both sampling error and measurement error.<sup>1</sup> All studies reported similar variability on PBCO measures, so we did not correct for range restriction. We computed mean observed correlations ( $\bar{r}$ ), mean corrected correlations ( $\bar{p}$ ), and confidence intervals around the mean corrected correlations.

<sup>1</sup> Reliability was corrected using internal consistency artifact distributions (alpha or composite reliability) compiled from studies included in the present meta-analyses. Weighted mean internal consistency values for PBCO measures ranged from .74 to .83; full distributions are in Table S2 in the online supplemental material. In line with previous meta-analyses (e.g., Ng et al., 2005), correlations with mobility behavior and objective career success were not corrected for criterion unreliability.



Table 1  
Demographic and Study Design Characteristics of Included Samples

| Type of sample                 | <i>k</i> | % of samples | Type of sample                                  | <i>k</i> | % of samples |
|--------------------------------|----------|--------------|---|----------|--------------|
| Employed adult                 | 107      | 72%          | Students  | 38       | 26%          |
| Heterogeneous occupations      | 72       | 49%          | Undergraduate                                   | 16       | 11%          |
| Professionals                  | 7        | 5%           | Heterogeneous fields                            | 6        | 4%           |
| Nonprofit employees            | 1        | 1%           | Accounting                                      | 1        | 1%           |
| Expatriates                    | 7        | 5%           | Arts  | 1        | 1%           |
| Mixed/otherwise unspecified    | 57       | 39%          | Business/management                             | 6        | 4%           |
| Homogeneous occupations        | 35       | 24%          | Education                                       | 1        | 1%           |
| Academic                       | 3        | 2%           | Social sciences                                 | 1        | 1%           |
| Accounting/finance             | 3        | 2%           | MBA   | 14       | 9%           |
| Art                            | 1        | 1%           | Other graduate                                  | 3        | 2%           |
| Bus driver                     | 1        | 1%           | Heterogeneous fields                            | 1        | 1%           |
| Health care management         | 1        | 1%           | Social science/economics                        | 2        | 1%           |
| Hotel management               | 1        | 1%           | Mixed undergraduate/graduate                    | 5        | 3%           |
| HR management/recruitment      | 5        | 3%           | Heterogeneous fields                            | 4        | 3%           |
| IT/engineering                 | 5        | 3%           | Expatriate students                             | 1        | 1%           |
| Managers/executives            | 5        | 3%           | Unemployed adults                               | 2        | 1%           |
| Marketing                      | 1        | 1%           | Young adults (including student and nonstudent) | 1        | 1%           |
| Military                       | 1        | 1%           |   |          |              |
| Newspaper employees            | 1        | 1%           |   |          |              |
| Nurse                          | 1        | 1%           |   |          |              |
| R&D professionals              | 1        | 1%           |   |          |              |
| Teachers                       | 1        | 1%           |   |          |              |
| Temporary workers              | 4        | 3%           |   |          |              |
| Educational level <sup>a</sup> |          |              | Study design                                    |          |              |
| Heterogeneous                  | 29       | 23%          | Cross-sectional correlational                   | 135      | 90%          |
| Primarily high school or less  | 3        | 2%           | Experimental/intervention                       | 2        | 1%           |
| Licensure/associate's degree   | 1        | 1%           | Longitudinal/predictive                         | 13       | 9%           |
| Primarily university or higher | 69       | 55%          | Follow-up periods ranged 3 months to 18 months  |          |              |
| Master's degree or higher      | 19       | 15%          | ( <i>M</i> = 8, <i>SD</i> = 4.26)               |          |              |
| Doctoral                       | 4        | 3%           |   |          |              |
| Across samples                 |          |              |   |          |              |
| Gender and age                 | <i>M</i> | <i>SD</i>    |   |          |              |
| % female                       | 46%      | 16%          |   |          |              |
| Mean age (years)               | 33.18    | 7.78         |   |          |              |
| <i>SD</i> age (years)          | 7.46     | 3.80         |   |          |              |

<sup>a</sup> Educational level percentages are based on those reporting education information (*k* = 125).

In cases where a study reported multiple estimates of the same construct relationship for a single sample, we computed composite correlations and reliability coefficients (Schmidt & Hunter, 2015, pp. 443, 446) to maintain independence of the effect sizes contributing to each meta-analysis. In the small number of cases where longitudinal studies reported estimates of the same construct relationship at multiple time points, we retained the correlation with the largest sample size.

To examine heterogeneity, we computed credibility intervals for corrected correlations. The credibility interval is computed as:  $\bar{\rho} \pm t \times SD_{\rho}$ , where  $\bar{\rho}$  is the estimated mean corrected correlation,  $SD_{\rho}$  is the estimated true standard deviation of corrected correlations (analogous to the  $\tau$  statistic [square root of the random effects variance] in Hedges–Olkin meta-analysis), and  $t$  is the critical value of a  $t$  distribution with  $k$  (number of studies) – 1 degree of freedom. The 80% credibility interval indicates the range of values in which 80% of the population correlations lie (Whitener, 1990). If the credibility interval is wide, this suggests the presence of meaningful moderators;

whereas if the credibility interval is narrow, then any possible moderators can have only small or trivial effects (Wiernik, Kostal, Wilmot, Dilchert, & Ones, 2017).

Credibility intervals have numerous advantages over the  $Q$  significance test for evaluating effect size heterogeneity. First, the  $Q$  test is underpowered unless moderator effects or the number of studies are very large (Hedges & Pigott, 2004). Second, the  $Q$  test confounds sample size (number of studies,  $k$ ) with the magnitude of effect size heterogeneity and thus  $Q$  cannot directly indicate whether estimated heterogeneity is practically meaningful (Schmidt & Hunter, 2015, p. 414). A meta-analysis with large  $k$  can have a significant  $Q$  test even if the amount of heterogeneity is trivial. Credibility intervals are also preferred over variance-accounted-for statistics, such as  $I^2$ , which can also suggest the presence of moderators even if the absolute amount of variability of effect sizes across studies is trivial. For example, if the observed variance is .002 and the true variance is .001,  $I^2 = .50$ , which would typically be interpreted as suggesting moderators, even

Table 2  
*Construct Definitions and Example Scales for Meta-Analyzed Constructs*

| Construct                               | Description  | Example scales or studies  |
|---|--|--|
| Protean career orientation              | Preferences to take responsibility for one's own career outcomes and development, to make decisions based on one's core values or identity, and to pursue satisfaction and subjective career success (Briscoe et al., 2006; Hall, 2002)        |  |
| Self-directed                           | Feelings of independence in one's career or responsibility for managing one's career path or direction   | Protean Career Attitude Scale: Self-Directed Career Management (Briscoe et al., 2006)  |
| Values-driven                           | Reliance on one's personal values, identity, or desires to make career decisions and evaluate one's career success   | Protean Career Attitude Scale: Values-Driven (Briscoe et al., 2006)  |
| Overall                                 | Measures that combine aspects of self-directed and values-driven components of the protean career orientation  | Protean Career Orientation (Baruch, Bell, & Gray, 2005; Baruch & Quick, 2007); Protean Career Attitude Scale: Total (Briscoe et al., 2006)   |
| Boundaryless career orientation         | Preferences to follow a career path characterized by independence from any single employer for work success, resources, and advancement, including psychological mobility and physical mobility preferences (Arthur & Rousseau, 1996)          |  |
| Psychological mobility                  | Desires to work with individuals or contexts outside of one's current organization (without formally changing employers or job titles), confidence in one's career despite constraints, rejection of career opportunities for personal reasons | Boundaryless Career Attitude Scale: Boundaryless Mindset (Briscoe et al., 2006); Working Beyond Organizational Boundaries, Rejection of Career Opportunities for Personal Reasons (Gubler, Arnold, & Coombs, 2014a)      |
| Organizational mobility preferences     | Desire to change one's organization or job frequently throughout one's career, preferences to change employment environments frequently (e.g., for temporary work), or aversion to remaining in one organization for long                      | Boundaryless Career Attitude Scale: Organizational Mobility Preferences (Briscoe et al., 2006); Preference for Temporary Work (Clinton, Bernhard-Oettel, Rigotti, & de Jong, 2011; Marler, Barringer, & Milkovich, 2002) |
| Overall                                 | Measures that combine aspects of both psychological mobility and one or more forms of preferences for physical mobility (e.g., organizational mobility, geographic mobility, occupational mobility)  | Boundaryless Career Attitude Scale: Total (Briscoe et al., 2006)   |
| Career self-management behavior         | Behaviors individuals engage in to enhance their future career opportunities and success by increasing their career-relevant capabilities or their access to career resources (Z. King, 2004)  | Career Self-Management Scale (Noe, 1996); Career Engagement Scale (Hirschi, Freund, & Herrmann, 2014); Individual Career Management Scale (De Vos & Soens, 2008)   |
| Networking behavior                     | Interpersonal behaviors aimed to exchange information and develop one's social contacts, with the purpose of further one's career  | Employability: Networking (Griffeth, Steel, Allen, & Bryan, 2005); Career Self-Management: Networking (Noe, 1996)  |
| Career planning                         | Setting concrete goals for how one wants one's career to progress and identifying the steps needed to accomplish those goals   | Career Salience Scale: Planning and Thinking (Greenhaus, 1971); Career Planning (Gould, 1979)  |
| Career exploration                      | Gathering information about occupational characteristics, career opportunities, and the labor market   | Career Exploration Survey: Environment (Stumpf, Colarelli, & Hartman, 1983); Career Strategies Inventory: Seeking Guidance (Gould & Penley, 1984)  |
| Development activities                  | Voluntary engagement in learning opportunities, such as attending training, soliciting feedback, and pursuing challenging job assignments  | Career Strategies Inventory: Creating Opportunity (Gould & Penley, 1984); Skills Development (Eby, Butts, & Lockwood, 2003)  |
| Self-promotion                          | Making one's accomplishments visible to others, advocating for one's career goals to decision-makers (e.g., managers, senior employees)  | Initiation of Mentoring Relationships (Turban & Dougherty, 1994); Career Strategies Inventory: Self-nomination (Noe, 1996)   |
| Receiving organizational career support | Amount or quality of organization-supplied career development support (e.g., career planning/guidance, training and development, mentoring)  | Development Opportunity Scale (Greenhaus, Collins, Singh, & Parasuraman, 1997); Satisfaction with Organizational Career Support (Baruch & Quick, 2007)   |
| Career satisfaction                     | General positive evaluations of one's career and career progress, either as a direct measure of "overall satisfaction" or as a sum of measures of satisfaction with specific aspects of one's career   | Career Satisfaction Scale (Greenhaus, Parasuraman, & Wormley, 1990); Subjective Career Success Scales (Dries, Pepermans, & Carlier, 2008); single-item measures  |

(table continues)

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Table 2 (continued)

| Construct                     | Description  | Example scales or studies   |
|-------------------------------|--|---|
| Organizational mobility       | Number of different employers over a specified period  | Briscoe et al. (2006); Gubler et al. (2014a)  |
| Salary/salary growth          | Income at the current time or increases in income over a specified period  | Self-report salary; Self-report pay increase  |
| Promotions/hierarchical level | Organizational hierarchical level or promotions to higher levels over a specified period, either within one organization or over one's career  | Self-report hierarchical level; Self-report promotions  |
| Job satisfaction              | General positive evaluations of one's job and work situation, either as a direct measure of "overall satisfaction" or as a sum of measures of satisfaction with specific job aspects   | Job Satisfaction Survey: Overall (Spector, 1985); Abridged Job In General Scale (Russell et al., 2004); single-item measures  |
| Turnover intentions           | Intentions to leave one's organization within a specified period   | Turnover Intentions (Farrell & Rusbult, 1992); single-item measures   |
| Big Five personality traits   | The Big Five traits Extraversion, Openness, Agreeableness, Emotional Stability, and Conscientiousness (John, Naumann, & Soto, 2008); most scales were designed to measure the Big Five and thus did not require classification | Big Five Inventory (John & Srivastava, 1999); Big Five Mini Markers (Saucier, 1994); NEO PI-R (Costa & McCrae, 1992); Self-Regulation Questionnaire (Neal & Carey, 2005) was coded as Conscientiousness |
| Proactive personality         | "A stable disposition to take personal initiative in a broad range of activities and situations" (Seibert et al., 2001, p. 847)  | Proactive Personality Scale (Bateman & Crant, 1993); Personal Initiative Questionnaire (Frese, Fay, Hilburger, Leng, & Tag, 1997)   |
| Self-efficacy                 | Positive beliefs about one's capacity to perform activities or accomplish goals (Bandura, 2001), including both generalized self-efficacy and contextualized forms, such as work-related or professional self-efficacy         | PsyCap: Self-Efficacy (Luthans, Avolio, Avey, & Norman, 2007); Role Breadth Self-Efficacy (Parker, 1998); Career Self-Efficacy Scale (Kossek, Roberts, Fisher, & Demarr, 1998)                          |

though the absolute amount of heterogeneity is trivial. Thus, credibility intervals are the preferred method for assessing effect size heterogeneity because they directly indicate the range of possible moderator effects.

To aid in interpreting effect sizes, we compared our results to Paterson et al.'s (2016) empirical distribution of corrected correlations. Paterson et al. used 258 meta-analyses published in top applied psychology and management journals to develop empirical distributions for correlations between micro-level variables in organizational research. Using the quartiles of their overall distribution for corrected correlations, we interpreted corrected correlations ( $\rho$ ) < .15 as negligible, .15 to .24 as small, .25 to .39 as moderate, and  $\geq$  .40 as large. Following the method by Wiernik et al. (2017), we interpreted credibility intervals as reflecting meaningful heterogeneity if they spanned a substantial percentage of the distribution of effect sizes observed in applied psychology research (e.g., if the interval spans from "small" to "large" correlations as defined in the previous sentence).

Meta-analyses were calculated using the *psychmeta* package (Dahlke & Wiernik, 2018, Version 2.2.0) in *R* (R Core Team, 2018, Version 3.5.1).

**Confirmatory factor analyses.** Hypotheses 1a–1c propose that protean self-directed, protean values-driven, and psychological mobility will be strongly intercorrelated and only weakly related to physical mobility preferences. Based on these hypotheses, we tested two alternative PBCO structural models using confirmatory factor analysis. We fit two models (see Figure 1)—a traditional model with protean and boundaryless orientations as distinct constructs encompassing their two components, and an alternative model where self-directed, values-driven, and psychological mobility loaded onto a single factor and physical mobility preferences loaded onto another. Model fits were compared using the root mean squared error of approximation (RMSEA), the Tucker–Lewis Index (TLI), and the mean absolute residual correlation (CMAR; Bentler, 2007; Hu & Bentler, 1999; Kenny, Kaniskan, & McCoach, 2015; Maydeu-

Olivares, 2017). To account for dependency in the meta-analytic mean correlations, we estimated their asymptotic covariance matrix using the results from the bivariate meta-analyses, using methods based on Becker (2009). Models were estimated using generalized least squares in the *OpenMx* package (Neale et al., 2016, Version 2.10.0) in *R*, using the inverse of the asymptotic covariance matrix among meta-analytic mean correlations as weights.

**Incremental validity analyses.** To assess whether protean and boundaryless career orientations incrementally predict criteria over their associated personality traits, we constructed a meta-analytic corrected correlation matrix among PBCO, the Big Five, proactive personality, self-efficacy, and criteria using published meta-analyses and new meta-analyses conducted for this study. We used this matrix as input for hierarchical regression analyses to estimate the incremental validity ( $\Delta R^2$ ) for each criterion when PBCO were added over the personality traits. We computed confidence intervals for  $\Delta R^2$  using the asymptotic covariance matrix described above following the delta method approach described by Becker (1992; see also Jones & Waller, 2015) and the covariance formulas described by Alf and Graf (1999). We adjusted  $R^2$  and  $\Delta R^2$  for overfitting using the harmonic mean sample size of the input meta-analyses (cf. Viswesvaran & Ones, 1995). Sources of values for these analyses are available in Table S5 in the online supplemental material.

## Results

### Relations Among Protean and Boundaryless Career Orientations

Meta-analytic results for relations among protean and boundaryless career orientations are shown in Table 3. Protean self-directed and protean values-driven were highly correlated

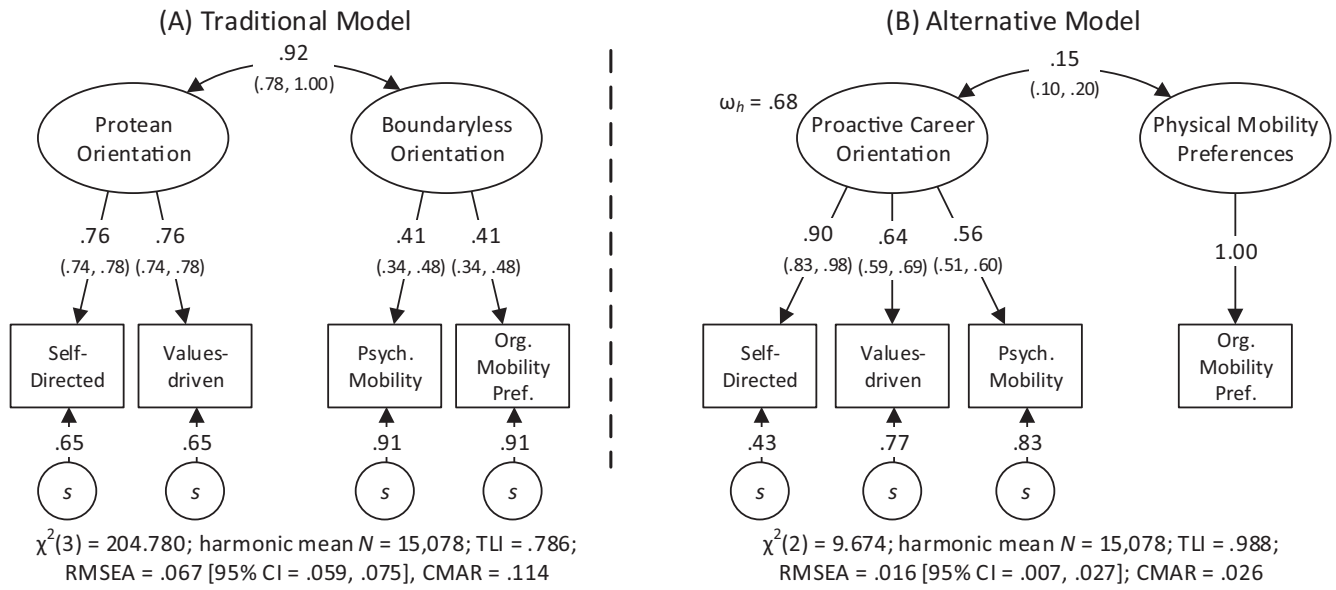


Figure 1. Confirmatory factor analyses of alternate structural models for protean and boundaryless career orientations. Coefficients are standardized factor loadings or factor correlations (values in parentheses are 95% profile-likelihood confidence intervals). For Model A, loadings for each factor were fixed to equal for identification. Because models were estimated using correlation matrices, the specific factor variance for each PBCO measure was fixed to 1 minus its squared factor loading. *s* = specific factor; TLI = Tucker–Lewis Index; RMSEA = root mean square error of approximation; CMAR = mean absolute residual correlation.

( $\bar{\rho} = .58$ ), with consistently strong relations across samples (80% credibility interval ranged .43 to .73). Psychological mobility was also moderately to strongly related to both protean facets ( $\bar{\rho} = .50$  for self-directed, .35 for values-driven; credibility intervals showed moderate to large correlations across samples), supporting Hypothesis 1a.

In contrast, psychological mobility and protean career orientations all showed weak relations with organizational mobility preferences ( $\bar{\rho} = .10$  for protean self-directed, .08 for protean values-driven, .16 for psychological mobility). Relations between mobility preferences and other orientations were quite variable across samples, even after accounting for artifactual variance due

Table 3  
Relations Between Protean and Boundaryless Career Orientations (PBCO)

| Relation                                 | <i>k</i> | <i>N</i> | $\bar{r}$ | $SD_r$ | $SD_{res}$ | $\bar{\rho}$ | $SD_{r_c}$ | $SD_{\rho}$ | 95% CI     | 80% CV      |
|--|----------|----------|-----------|--------|------------|--------------|------------|-------------|------------|-------------|
| Relations among PBCO components          |          |          |           |        |            |              |            |             |            |             |
| PS–PV                                    | 65       | 20 738   | .44       | .10    | .09        | <b>.58</b>   | .13        | .12         | [.55, .61] | [.43, .73]  |
| PS–PsM                                   | 44       | 14 265   | .40       | .12    | .10        | <b>.50</b>   | .15        | .13         | [.45, .54] | [.33, .67]  |
| PV–PsM                                   | 39       | 11 635   | .27       | .12    | .10        | <b>.35</b>   | .15        | .13         | [.30, .40] | [.18, .52]  |
| PS–OMP                                   | 46       | 16 127   | .08       | .18    | .18        | <b>.10</b>   | .24        | .23         | [.03, .17] | [–.20, .39] |
| PV–OMP                                   | 41       | 13 832   | .06       | .11    | .10        | <b>.08</b>   | .15        | .13         | [.03, .13] | [–.10, .25] |
| PsM–OMP                                  | 54       | 16 850   | .13       | .17    | .16        | <b>.16</b>   | .21        | .20         | [.11, .22] | [–.10, .43] |
| Component relations with overall domains |          |          |           |        |            |              |            |             |            |             |
| PS–OB                                    | 41       | 12 792   | .28       | .14    | .13        | <b>.36</b>   | .17        | .16         | [.30, .41] | [.15, .56]  |
| PV–OB                                    | 39       | 11 648   | .21       | .11    | .09        | <b>.27</b>   | .14        | .12         | [.23, .32] | [.12, .43]  |
| PsM–OP                                   | 44       | 14 026   | .36       | .11    | .10        | <b>.44</b>   | .14        | .12         | [.40, .48] | [.28, .60]  |
| OMP–OP                                   | 46       | 16 215   | .08       | .16    | .15        | <b>.10</b>   | .20        | .19         | [.04, .16] | [–.15, .35] |
| Relation between overall domains         |          |          |           |        |            |              |            |             |            |             |
| OP–OB                                    | 46       | 14 664   | .27       | .13    | .11        | <b>.34</b>   | .16        | .14         | [.29, .38] | [.15, .52]  |

Note. *k* = number of samples included in meta-analysis;  $\bar{r}$  = mean observed correlation;  $SD_r$  = observed standard deviation of correlations;  $SD_{res}$  = residual standard deviation of correlations after accounting for sampling error and unreliability;  $\bar{\rho}$  = mean correlation corrected for unreliability in both measures (in bold);  $SD_{r_c}$  = observed standard deviation of corrected correlations;  $SD_{\rho}$  = residual standard deviation of corrected correlations; 95% CI = 95% confidence interval for  $\bar{\rho}$ ; 80% CV = 80% credibility interval for  $\rho$ ; PS = protean self-directed; PV = protean values-driven; PsM = psychological mobility; OMP = organizational mobility preferences; OP = overall protean orientation; OB = overall boundaryless orientation.

to sampling and measurement error; credibility intervals for these correlations ranged from moderate positive values to small negative values (e.g., the credibility interval for correlations between mobility preferences and protean self-directed ranged  $-.20$  to  $.39$ ). These results support Hypotheses 1b and 1c, which predicted weak relations between physical mobility preferences and other PBCO.

The pattern of relations among protean and boundaryless career orientations suggests that self-directed, values-driven, and psychological mobility orientations all belong to the same broad construct domain (cf. facets of Conscientiousness show a mean meta-analytic intercorrelation of  $\rho = .39$ ; Dudley, Orvis, Lebiecki, & Cortina, 2006), but that physical mobility preferences are a distinct construct. We tested this hypothesis using confirmatory factor analysis. Results are shown in Figure 1. The traditional model with protean and boundaryless as distinct factors showed poor fit (TLI = .786, RMSEA = .067; 95% CI [.059, .075], CMAR = .114), whereas the alternative model allowing self-directed, values-driven, and psychological mobility to load on the same factor showed nearly perfect fit (TLI = .988, RMSEA = .016; 95% CI [.007, .027], CMAR = .026). For the alternative model, the proactive career orientation factor accounted for 68% of the variance in its three components ( $\omega_h = .68$ ; Reise, 2012). These results show that an "overall boundaryless" construct, combining psychological and physical mobility, is not empirically meaningful, so we do not report further results for this variable.

## Relations of PBCO With Career and Work Outcomes

**Career management behaviors.** Criterion-related validity results are shown in Table 4. Hypothesis 2 predicted that protean career orientations and psychological mobility are positively related to career self-management behaviors. Results partially supported these predictions. Career self-management behaviors (including planning, pursuing development opportunities, networking, etc.) were moderately strongly related to protean self-directed and psychological mobility ( $\bar{\rho} = .43, .39$ , respectively). However, protean values-driven and physical mobility preferences were weakly related to these behaviors ( $\bar{\rho} = .14, .04$ , respectively). The magnitudes of these relations were similar across types of management behaviors. Career management relations with overall protean orientation and protean self-directed were somewhat variable (credibility intervals spanned small/moderate to large values;  $.27$  to  $.58$  for protean self-directed;  $.31$  to  $.57$  for overall protean orientation), but other relations were consistent across samples. The protean orientation scale used did not moderate overall protean relations with career management behaviors. Interestingly, self-directed and overall protean orientations were also somewhat related to receiving career support from one's organization ( $\bar{\rho} = .17, .16$ , respectively; credibility intervals showed little to no heterogeneity), indicating that preferences for career self-management and receiving organizational career support are not mutually exclusive.

**Career satisfaction.** Hypothesis 3 predicted that PBCO are positively related to career satisfaction. In line with this prediction, career satisfaction was moderately to strongly related to protean self-directed ( $\bar{\rho} = .41$ ; credibility interval  $.28$  to  $.54$ ) and overall protean orientation ( $\bar{\rho} = .34$ ; credibility interval  $.18$  to  $.50$ ). However, protean values-driven was negligibly related to career satisfaction ( $\bar{\rho} = .07$ ; credibility interval  $.02$  to  $.13$ ), and psychological mobility was weakly, but inconsistently related to career satisfaction ( $\bar{\rho} = .15$ ; credibility interval  $-.06$  to  $.36$ ). Organizational

mobility preferences were weakly to strongly *negatively* related to career satisfaction across samples ( $\bar{\rho} = -.22$ ; credibility interval  $-.38$  to  $-.06$ ). Thus, Hypothesis 5 was partially supported. The Baruch et al. (2005) overall protean scale was more strongly related to career satisfaction than the Briscoe et al. (2006) scale ( $\bar{\rho} = .44$  vs.  $.29$ ), possibly because the Baruch et al. scale focuses more on protean self-directed than values-driven.

**Mobility behavior.** Hypothesis 4 predicted that organizational mobility preferences are positively related to actual interorganizational mobility behavior. This hypothesis was not supported. Mobility preferences were consistently weakly related to organizational mobility ( $\bar{\rho} = .14$ ; credibility interval  $.01$  to  $.27$ ), as well as other forms of mobility (within-employer job changes,  $\bar{\rho} = -.04$ ; geographic movement,  $\bar{\rho} = .04$ ; full results in Table S3 in the online supplemental material). Psychological mobility and protean orientations were also consistently unrelated to mobility.

**Objective career success.** In line with other trait and attitudinal predictions of salary and hierarchical level (Ng et al., 2005), Hypothesis 5 predicted that PBCO would be at most weakly related to these criteria. In fact, all correlations between PBCO and objective career success were negligible ( $\bar{\rho} < .15$ ), and credibility intervals showed these relations were consistently weak across samples. Two occupationally homogeneous samples showed larger salary relations with an ad hoc overall protean scale ( $\bar{\rho} = .44$ ; cf. Dilchert & Ones, 2008), though the small total sample size means we cannot rule out second-order sampling error as an explanation.

**Non-career-focused attitudes.** Supporting Hypothesis 6, job satisfaction showed a similar pattern of relations with PBCO as did career satisfaction, but the correlation magnitudes were weaker (e.g., protean self-directed correlated  $\bar{\rho} = .29$  with job satisfaction, but  $.41$  with career satisfaction). Credibility intervals showed job satisfaction had consistently small to moderate correlations across samples with protean self-directed and psychological mobility and consistently negligible relations with protean values-driven. Studies using the Briscoe et al. (2006) physical mobility preferences scale found weakly to strongly negative correlations with job satisfaction ( $\bar{\rho} = -.22$ ; credibility interval  $-.42$  to  $-.02$ ), but two studies using other scales found weak positive correlations ( $\bar{\rho} = .14$ ; credibility interval  $-.11$  to  $.39$ ). Notably, the larger of these studied a sample of temporary staffing firm employees (Clinton, Bernhard-Oettel, Rigotti, & de Jong, 2011;  $\bar{r} = .10$ ;  $N = 1,169$ ).

Similarly, turnover intentions were negligibly to weakly related to protean self-directed ( $\bar{\rho} = -.05$ ; credibility interval  $-.24$  to  $.13$ ), protean values-driven ( $\bar{\rho} = .14$ ; no variability), and psychological mobility ( $\bar{\rho} = .09$ ; no variability). Consistent with their conceptual overlap, organizational mobility preferences were consistently strongly related to turnover intentions ( $\bar{\rho} = .41$ ; credibility interval  $.31$  to  $.52$ ), though to some degree this may reflect a tautological relationship.

As was observed for career satisfaction, the Baruch et al. (2005) overall protean scale showed somewhat divergent relations from the Briscoe et al. (2006) measure with job satisfaction ( $\bar{\rho} = .30$  vs.  $.17$ ) and turnover intentions ( $\bar{\rho} = -.10$  vs.  $.09$ ).

## Relations of PBCO With Personality Traits

Relations of PBCO with personality traits are shown in Table 5. Relations with the Big Five traits were variable across studies, with

Table 4  
*Criterion-Related Validity of Protean and Boundaryless Career Orientations*

| Relation                                | <i>k</i> | <i>N</i> | $\bar{r}$ | <i>SD<sub>r</sub></i> | <i>SD<sub>res</sub></i> | $\bar{\rho}$ | <i>SD<sub>r<sub>c</sub></sub></i> | <i>SD<sub>p</sub></i> | 95% CI        | 80% CV        |
|---|----------|----------|-----------|-----------------------|-------------------------|--------------|-----------------------------------|-----------------------|---------------|---------------|
| Career self-management behaviors        |          |          |           |                       |                         |              |                                   |                       |               |               |
| Overall                                 |          |          |           |                       |                         |              |                                   |                       |               |               |
| Protean self-directed                   | 13       | 4 288    | .34       | .11                   | .09                     | <b>.43</b>   | .14                               | .12                   | [ .34, .51]   | [ .27, .58]   |
| Protean values-driven                   | 6        | 1 507    | .11       | .08                   | .04                     | <b>.14</b>   | .10                               | .05                   | [ .03, .24]   | [ .06, .22]   |
| Overall protean orientation             | 17       | 6 457    | .28       | .14                   | .13                     | <b>.35</b>   | .18                               | .17                   | [ .26, .44]   | [ .13, .57]   |
| <i>Baruch et al. (2005) scale</i>       | 6        | 2 118    | .27       | .20                   | .19                     | <b>.33</b>   | .25                               | .24                   | [ .07, .60]   | [ -.02, .69]  |
| <i>Briscoe et al. (2006) scale</i>      | 9        | 2 217    | .27       | .09                   | .06                     | <b>.33</b>   | .11                               | .08                   | [ .25, .42]   | [ .23, .44]   |
| <i>Other scales</i>                     | 3        | 2 226    | .31       | .16                   | .16                     | <b>.38</b>   | .21                               | .20                   | [ -.13, .89]  | [ .01, .76]   |
| Psychological mobility                  | 7        | 3 151    | .32       | .06                   | .04                     | <b>.39</b>   | .08                               | .04                   | [ .32, .46]   | [ .32, .45]   |
| Organizational mobility preferences     | 6        | 2 735    | .04       | .07                   | .05                     | <b>.04</b>   | .09                               | .06                   | [ -.05, .13]  | [ -.05, .14]  |
| Networking                              |          |          |           |                       |                         |              |                                   |                       |               |               |
| Protean self-directed                   | 3        | 1 063    | .29       | .08                   | .06                     | <b>.37</b>   | .10                               | .07                   | [ .13, .61]   | [ .24, .50]   |
| Protean values-driven                   | 3        | 1 063    | .07       | .04                   | .00                     | <b>.09</b>   | .06                               | .00                   | [ -.06, .23]  | [ .09, .09]   |
| Overall protean orientation             | 5        | 1 661    | .18       | .16                   | .15                     | <b>.22</b>   | .21                               | .20                   | [ -.04, .48]  | [ -.08, .53]  |
| Psychological mobility                  | 4        | 1 178    | .32       | .03                   | .00                     | <b>.39</b>   | .03                               | .00                   | [ .34, .44]   | [ .39, .39]   |
| Organizational mobility preferences     | 4        | 1 178    | .07       | .08                   | .05                     | <b>.08</b>   | .10                               | .06                   | [ -.07, .24]  | [ -.02, .19]  |
| Career planning                         |          |          |           |                       |                         |              |                                   |                       |               |               |
| Protean self-directed                   | 3        | 1 531    | .39       | .02                   | .00                     | <b>.48</b>   | .02                               | .00                   | [ .42, .54]   | [ .48, .48]   |
| Protean values-driven                   | 2        | 200      | .17       | .06                   | .00                     | <b>.22</b>   | .07                               | .00                   | [ -.44, .87]  | [ .22, .22]   |
| Overall protean orientation             | 6        | 1 620    | .37       | .15                   | .14                     | <b>.45</b>   | .19                               | .17                   | [ .25, .65]   | [ .19, .71]   |
| Psychological mobility                  | 1        | 207      | .21       | —                     | —                       | <b>.25</b>   | —                                 | —                     | [ .10, .41]   | —             |
| Organizational mobility preferences     | 1        | 207      | .03       | —                     | —                       | <b>.04</b>   | —                                 | —                     | [ -.13, .21]  | —             |
| Career exploration                      |          |          |           |                       |                         |              |                                   |                       |               |               |
| Protean self-directed                   | 1        | 244      | .18       | —                     | —                       | <b>.23</b>   | —                                 | —                     | [ .07, .38]   | —             |
| Protean values-driven                   | 1        | 244      | .19       | —                     | —                       | <b>.25</b>   | —                                 | —                     | [ .09, .41]   | —             |
| Overall protean orientation             | 3        | 1 146    | .28       | .04                   | .00                     | <b>.35</b>   | .05                               | .00                   | [ .24, .46]   | [ .35, .35]   |
| Psychological mobility                  | 2        | 623      | .21       | .01                   | .00                     | <b>.25</b>   | .01                               | .00                   | [ .18, .32]   | [ .25, .25]   |
| Organizational mobility preferences     | 1        | 207      | .02       | —                     | —                       | <b>.03</b>   | —                                 | —                     | [ -.15, .20]  | —             |
| Development activities                  |          |          |           |                       |                         |              |                                   |                       |               |               |
| Protean self-directed                   | 4        | 1 266    | .31       | .15                   | .14                     | <b>.43</b>   | .20                               | .19                   | [ .11, .75]   | [ .12, .74]   |
| Protean values-driven                   | 2        | 671      | .17       | .01                   | .00                     | <b>.23</b>   | .02                               | .00                   | [ .08, .38]   | [ .23, .23]   |
| Overall protean orientation             | 6        | 2 839    | .27       | .12                   | .12                     | <b>.37</b>   | .17                               | .16                   | [ .19, .54]   | [ .14, .60]   |
| Psychological mobility                  | 3        | 1 892    | .35       | .07                   | .05                     | <b>.46</b>   | .09                               | .07                   | [ .24, .68]   | [ .32, .59]   |
| Organizational mobility preferences     | 3        | 1 892    | .04       | .08                   | .07                     | <b>.05</b>   | .11                               | .09                   | [ -.21, .31]  | [ -.12, .22]  |
| Self-promotion                          |          |          |           |                       |                         |              |                                   |                       |               |               |
| Psychological mobility                  | 2        | 574      | .33       | .01                   | .00                     | <b>.42</b>   | .02                               | .00                   | [ .27, .58]   | [ .42, .42]   |
| Organizational mobility preferences     | 2        | 574      | .06       | .08                   | .05                     | <b>.08</b>   | .11                               | .07                   | [ -.87, 1.00] | [ -.14, .29]  |
| Receiving organizational career support |          |          |           |                       |                         |              |                                   |                       |               |               |
| Protean self-directed                   | 4        | 1 326    | .14       | .04                   | .00                     | <b>.17</b>   | .05                               | .00                   | [ .08, .25]   | [ .17, .17]   |
| Protean values-driven                   | 4        | 1 326    | .05       | .07                   | .05                     | <b>.07</b>   | .09                               | .06                   | [ -.08, .21]  | [ -.03, .16]  |
| Overall protean orientation             | 6        | 1 979    | .13       | .06                   | .03                     | <b>.16</b>   | .07                               | .03                   | [ .08, .24]   | [ .11, .21]   |
| Psychological mobility                  | 3        | 830      | .09       | .10                   | .08                     | <b>.10</b>   | .12                               | .09                   | [ -.19, .39]  | [ -.08, .28]  |
| Organizational mobility preferences     | 3        | 830      | -.02      | .01                   | .00                     | <b>-.03</b>  | .01                               | .00                   | [ -.06, .00]  | [ -.03, -.03] |
| Career satisfaction                     |          |          |           |                       |                         |              |                                   |                       |               |               |
| Protean self-directed                   | 20       | 7 756    | .34       | .09                   | .08                     | <b>.41</b>   | .11                               | .10                   | [ .35, .46]   | [ .28, .54]   |
| Protean values-driven                   | 10       | 4 580    | .06       | .06                   | .03                     | <b>.07</b>   | .07                               | .04                   | [ .03, .12]   | [ .02, .13]   |
| Overall protean orientation             | 24       | 11 193   | .28       | .11                   | .10                     | <b>.34</b>   | .13                               | .12                   | [ .28, .39]   | [ .18, .50]   |
| <i>Baruch et al. (2005) scale</i>       | 8        | 3 650    | .37       | .07                   | .05                     | <b>.44</b>   | .08                               | .06                   | [ .37, .51]   | [ .36, .53]   |
| <i>Briscoe et al. (2006) scale</i>      | 12       | 4 902    | .24       | .08                   | .06                     | <b>.29</b>   | .09                               | .07                   | [ .23, .35]   | [ .19, .39]   |
| <i>Other scales</i>                     | 5        | 2 745    | .23       | .15                   | .14                     | <b>.28</b>   | .18                               | .17                   | [ .05, .50]   | [ .01, .54]   |
| Psychological mobility                  | 10       | 5 990    | .13       | .14                   | .13                     | <b>.15</b>   | .16                               | .15                   | [ .04, .26]   | [ -.06, .36]  |
| Organizational mobility preferences     | 11       | 6 479    | -.18      | .10                   | .10                     | <b>-.22</b>  | .13                               | .12                   | [ -.30, -.13] | [ -.38, -.06] |
| Mobility behavior                       |          |          |           |                       |                         |              |                                   |                       |               |               |
| Organizational mobility <sup>a,b</sup>  |          |          |           |                       |                         |              |                                   |                       |               |               |
| Protean self-directed                   | 7        | 2 157    | .08       | .10                   | .08                     | <b>.09</b>   | .11                               | .09                   | [ -.01, .20]  | [ -.04, .23]  |
| Protean values-driven                   | 6        | 1 880    | -.03      | .08                   | .06                     | <b>-.03</b>  | .10                               | .07                   | [ -.13, .07]  | [ -.14, .08]  |
| Overall protean orientation             | 7        | 3 217    | .03       | .08                   | .06                     | <b>.03</b>   | .09                               | .07                   | [ -.05, .11]  | [ -.06, .13]  |
| Psychological mobility                  | 8        | 3 669    | .05       | .05                   | .02                     | <b>.05</b>   | .05                               | .02                   | [ .00, .09]   | [ .03, .07]   |
| Organizational mobility preferences     | 11       | 4 254    | .12       | .10                   | .08                     | <b>.14</b>   | .11                               | .09                   | [ .06, .21]   | [ .01, .27]   |

(table continues)



Table 4 (continued)

| Relation                                   | <i>k</i> | <i>N</i> | $\bar{r}$ | $SD_r$ | $SD_{res}$ | $\bar{\rho}$ | $SD_{rc}$ | $SD_p$ | 95% CI         | 80% CV        |
|--|----------|----------|-----------|--------|------------|--------------|-----------|--------|----------------|---------------|
| Objective career success                   |          |          |           |        |            |              |           |        |                |               |
| Salary/salary growth <sup>a</sup>          |          |          |           |        |            |              |           |        |                |               |
| Protean self-directed                      | 5        | 2 200    | .04       | .06    | .04        | <b>.06</b>   | .10       | .07    | [ -.07, .18]   | [ -.04, .16]  |
| Protean values-driven                      | 4        | 1 540    | .03       | .04    | .00        | <b>.04</b>   | .07       | .00    | [ -.07, .15]   | [ .04, .04]   |
| Overall protean orientation                | 9        | 3 953    | .07       | .12    | .11        | <b>.11</b>   | .19       | .17    | [ -.04, .25]   | [ -.13, .35]  |
| <i>Baruch et al. (2005) scale</i>          | 3        | 1 880    | .02       | .13    | .12        | <b>.04</b>   | .19       | .18    | [ -.45, .52]   | [ -.31, .38]  |
| <i>Briscoe et al. (2006) scale</i>         | 4        | 1 545    | .05       | .04    | .00        | <b>.08</b>   | .06       | .00    | [ -.02, .18]   | [ .08, .08]   |
| <i>Other scales</i>                        | 2        | 528      | .28       | .06    | .00        | <b>.44</b>   | .09       | .00    | [ -.39, 1.00]  | [ .44, .44]   |
| Psychological mobility                     | 4        | 1 461    | .09       | .09    | .07        | <b>.13</b>   | .13       | .10    | [ -.08, .34]   | [ -.04, .30]  |
| Organizational mobility preferences        | 8        | 3 206    | .05       | .11    | .09        | <b>.07</b>   | .16       | .14    | [ -.06, .21]   | [ -.13, .28]  |
| <i>Briscoe et al. (2006) scale</i>         | 6        | 2 320    | .02       | .09    | .08        | <b>.03</b>   | .14       | .12    | [ -.12, .17]   | [ -.15, .20]  |
| <i>Other scales</i>                        | 2        | 886      | .13       | .12    | .11        | <b>.20</b>   | .19       | .17    | [ -1.00, 1.00] | [ -.33, .73]  |
| Promotions/hierarchical level <sup>a</sup> |          |          |           |        |            |              |           |        |                |               |
| Protean self-directed                      | 9        | 3 211    | .10       | .05    | .00        | <b>.12</b>   | .06       | .00    | [ .07, .16]    | [ .12, .12]   |
| Protean values-driven                      | 9        | 3 205    | .06       | .05    | .00        | <b>.07</b>   | .06       | .00    | [ .03, .12]    | [ .07, .07]   |
| Overall protean orientation                | 13       | 5 624    | .09       | .05    | .02        | <b>.11</b>   | .06       | .02    | [ .07, .14]    | [ .08, .13]   |
| <i>Baruch et al. (2005) scale</i>          | 4        | 2 413    | .09       | .08    | .07        | <b>.10</b>   | .09       | .07    | [ -.04, .24]   | [ -.02, .22]  |
| <i>Briscoe et al. (2006) scale</i>         | 9        | 3 211    | .10       | .03    | .00        | <b>.11</b>   | .03       | .00    | [ .08, .13]    | [ .11, .11]   |
| Psychological mobility                     | 9        | 2 883    | .09       | .09    | .08        | <b>.10</b>   | .10       | .08    | [ .02, .18]    | [ -.01, .22]  |
| Organizational mobility preferences        | 11       | 3 182    | .03       | .09    | .07        | <b>.03</b>   | .10       | .08    | [ -.04, .11]   | [ -.08, .15]  |
| Non-career-focused attitudes               |          |          |           |        |            |              |           |        |                |               |
| Job satisfaction                           |          |          |           |        |            |              |           |        |                |               |
| Protean self-directed                      | 14       | 3 695    | .23       | .09    | .07        | <b>.29</b>   | .11       | .08    | [ .22, .35]    | [ .17, .40]   |
| Protean values-driven                      | 9        | 2 371    | .04       | .05    | .00        | <b>.05</b>   | .07       | .00    | [ .00, .11]    | [ .05, .05]   |
| Overall protean orientation                | 26       | 5 098    | .19       | .12    | .10        | <b>.24</b>   | .15       | .12    | [ .18, .30]    | [ .08, .39]   |
| <i>Baruch et al. (2005) scale</i>          | 16       | 2 584    | .25       | .13    | .10        | <b>.30</b>   | .16       | .12    | [ .22, .39]    | [ .14, .47]   |
| <i>Briscoe et al. (2006) scale</i>         | 11       | 2 618    | .14       | .09    | .06        | <b>.17</b>   | .11       | .07    | [ .10, .24]    | [ .08, .27]   |
| Psychological mobility                     | 8        | 2 099    | .10       | .05    | .00        | <b>.12</b>   | .06       | .00    | [ .07, .16]    | [ .12, .12]   |
| Organizational mobility preferences        | 13       | 4 299    | -.09      | .18    | .17        | <b>-.11</b>  | .22       | .21    | [ -.25, .02]   | [ -.40, .17]  |
| <i>Briscoe et al. (2006) scale</i>         | 11       | 3 048    | -.18      | .13    | .12        | <b>-.22</b>  | .17       | .15    | [ -.33, -.11]  | [ -.42, -.02] |
| <i>Other scales</i>                        | 2        | 1 251    | .11       | .08    | .07        | <b>.14</b>   | .10       | .08    | [ -.72, 1.00]  | [ -.11, .39]  |
| Turnover intentions                        |          |          |           |        |            |              |           |        |                |               |
| Protean self-directed                      | 8        | 3 003    | -.04      | .12    | .11        | <b>-.05</b>  | .14       | .13    | [ -.17, .07]   | [ -.24, .13]  |
| Protean values-driven                      | 5        | 2 041    | .11       | .02    | .00        | <b>.14</b>   | .03       | .00    | [ .11, .18]    | [ .14, .14]   |
| Overall protean orientation                | 17       | 7 060    | -.00      | .13    | .12        | <b>-.00</b>  | .16       | .15    | [ -.09, .08]   | [ -.20, .19]  |
| <i>Baruch et al. (2005) scale</i>          | 8        | 3 056    | -.08      | .15    | .14        | <b>-.10</b>  | .18       | .17    | [ -.25, .05]   | [ -.33, .13]  |
| <i>Briscoe et al. (2006) scale</i>         | 7        | 2 347    | .07       | .11    | .09        | <b>.09</b>   | .13       | .11    | [ -.03, .21]   | [ -.07, .25]  |
| <i>Other scales</i>                        | 2        | 1 657    | .03       | .01    | .00        | <b>.04</b>   | .01       | .00    | [ -.09, .18]   | [ .04, .04]   |
| Psychological mobility                     | 4        | 2 702    | .08       | .03    | .00        | <b>.09</b>   | .04       | .00    | [ .03, .15]    | [ .09, .09]   |
| Organizational mobility preferences        | 6        | 3 529    | .34       | .07    | .06        | <b>.41</b>   | .09       | .07    | [ .32, .51]    | [ .31, .52]   |

Note. *k* = number of samples included in meta-analysis;  $\bar{r}$  = mean observed correlation;  $SD_r$  = observed standard deviation of correlations;  $SD_{res}$  = residual standard deviation of correlations after accounting for sampling error and unreliability;  $\bar{\rho}$  = mean correlation corrected for unreliability in both measures (in bold);  $SD_{rc}$  = observed standard deviation of corrected correlations;  $SD_p$  = residual standard deviation of corrected correlations; 95% CI = 95% confidence interval for  $\bar{\rho}$ ; 80% CV = 80% credibility interval for  $\rho$ .

<sup>a</sup> Not corrected for criterion unreliability. <sup>b</sup> Number of employers over time.

wide credibility intervals. This variability resulted from a single study conducted in Iran with extreme outlier values for most correlations (e.g.,  $r = .91$  between Agreeableness and Openness; Rastgar, Ebrahimi, & Hessian, 2014). Once this study was removed, relations of PBCO with the Big Five, as well as with proactive personality and self-efficacy, were relatively consistent across samples.

Hypothesis 7 predicted that PBCO are positively related to proactivity- and initiative-related traits. Consistent with this hypothesis, protean self-directed and psychological mobility showed substantial relations with Conscientiousness ( $\bar{\rho} = .35, .22$ ), Extraversion ( $\bar{\rho} = .26, .48$ )<sup>2</sup>, Openness ( $\bar{\rho} = .37, .45$ , respectively), and proactive personality ( $\bar{\rho} = .59, .56$ ). Credibility intervals showed that these correlations ranged from small/moderate to very large across samples. Proactivity-related traits' relations with protean values-driven were weaker, but in the same direction. Organiza-

tional mobility preferences were weakly related to proactivity-related traits ( $\bar{\rho}$  ranged  $-.02$  to  $.17$ ; credibility intervals for Extraversion and proactive personality showed substantial variability).

Hypothesis 8 predicted that protean and boundaryless career orientations are positively related to self-efficacy. This hypothesis was also supported. Self-efficacy showed very strong positive relations with protean self-directed and psychological mobility ( $\bar{\rho} = .56, .50$ ), with credibility intervals indicating consistently large correlations. Self-efficacy was more weakly related to pro-

<sup>2</sup> One study (Lyons et al., 2015) used the Ten Item Personality Inventory Extraversion Scale, which lacks the assertiveness and exploration content that informed our hypothesis for this trait (see Credé, Harms, Niehorster, & Gaye-Valentine, 2012). When this study was removed, extraversion relations were  $\bar{\rho} = .31$  (protean self-directed) and  $.52$  (psychological mobility).

Table 5  
Relations of Protean and Boundaryless Career Orientations With Personality Traits

| Relation                            | <i>k</i> | <i>N</i> | $\bar{r}$ | <i>SD<sub>r</sub></i> | <i>SD<sub>res</sub></i> | $\bar{\rho}$ | <i>SD<sub>r_c</sub></i> | <i>SD<sub>p</sub></i> | 95% CI      | 80% CV      |
|-------------------------------------|----------|----------|-----------|-----------------------|-------------------------|--------------|-------------------------|-----------------------|-------------|-------------|
| <b>Conscientiousness</b>            |          |          |           |                       |                         |              |                         |                       |             |             |
| Protean self-directed               | 11       | 5 544    | .24       | .08                   | .07                     | <b>.35</b>   | .12                     | .09                   | [.27, .43]  | [.22, .48]  |
| Protean values-driven               | 9        | 4 407    | .15       | .08                   | .07                     | <b>.22</b>   | .12                     | .10                   | [.13, .32]  | [.08, .36]  |
| Overall protean orientation         | 10       | 4 615    | .25       | .09                   | .07                     | <b>.35</b>   | .12                     | .10                   | [.27, .44]  | [.22, .49]  |
| Psychological mobility              | 11       | 4 735    | .16       | .09                   | .07                     | <b>.22</b>   | .12                     | .09                   | [.14, .30]  | [.09, .34]  |
| Organizational mobility preferences | 11       | 4 734    | -.02      | .08                   | .06                     | <b>-.02</b>  | .11                     | .08                   | [-.10, .05] | [-.14, .09] |
| <b>Extraversion</b>                 |          |          |           |                       |                         |              |                         |                       |             |             |
| Protean self-directed               | 11       | 5 544    | .20       | .09                   | .08                     | <b>.26</b>   | .12                     | .10                   | [.18, .34]  | [.12, .40]  |
| Protean values-driven               | 9        | 4 407    | .07       | .04                   | .00                     | <b>.10</b>   | .05                     | .00                   | [.06, .14]  | [.10, .10]  |
| Overall protean orientation         | 9        | 4 408    | .15       | .07                   | .05                     | <b>.19</b>   | .09                     | .06                   | [.12, .25]  | [.10, .27]  |
| Psychological mobility              | 10       | 4 528    | .38       | .09                   | .07                     | <b>.48</b>   | .11                     | .09                   | [.40, .56]  | [.36, .60]  |
| Organizational mobility preferences | 10       | 4 527    | .11       | .13                   | .12                     | <b>.14</b>   | .17                     | .16                   | [.01, .26]  | [-.09, .36] |
| <b>Openness</b>                     |          |          |           |                       |                         |              |                         |                       |             |             |
| Protean self-directed               | 14       | 6 361    | .28       | .07                   | .06                     | <b>.37</b>   | .10                     | .08                   | [.31, .43]  | [.27, .47]  |
| Protean values-driven               | 12       | 5 224    | .20       | .08                   | .06                     | <b>.27</b>   | .10                     | .08                   | [.21, .34]  | [.17, .38]  |
| Overall protean orientation         | 12       | 5 225    | .27       | .07                   | .06                     | <b>.36</b>   | .10                     | .07                   | [.29, .42]  | [.25, .46]  |
| Psychological mobility              | 13       | 5 345    | .35       | .06                   | .03                     | <b>.45</b>   | .07                     | .04                   | [.40, .49]  | [.39, .50]  |
| Organizational mobility preferences | 13       | 5 344    | .13       | .06                   | .04                     | <b>.17</b>   | .08                     | .05                   | [.13, .22]  | [.11, .24]  |
| <b>Agreeableness</b>                |          |          |           |                       |                         |              |                         |                       |             |             |
| Protean self-directed               | 11       | 5 544    | .18       | .04                   | .00                     | <b>.26</b>   | .07                     | .00                   | [.22, .31]  | [.26, .26]  |
| Protean values-driven               | 9        | 4 407    | .12       | .06                   | .03                     | <b>.19</b>   | .09                     | .05                   | [.12, .26]  | [.12, .26]  |
| Overall protean orientation         | 9        | 4 408    | .18       | .05                   | .01                     | <b>.27</b>   | .08                     | .01                   | [.21, .33]  | [.25, .29]  |
| Psychological mobility              | 10       | 4 528    | .23       | .08                   | .06                     | <b>.33</b>   | .12                     | .08                   | [.24, .42]  | [.21, .45]  |
| Organizational mobility preferences | 10       | 4 527    | -.03      | .07                   | .05                     | <b>-.04</b>  | .11                     | .08                   | [-.12, .04] | [-.15, .07] |
| <b>Emotional stability</b>          |          |          |           |                       |                         |              |                         |                       |             |             |
| Protean self-directed               | 12       | 5 906    | .16       | .06                   | .03                     | <b>.24</b>   | .08                     | .04                   | [.18, .29]  | [.18, .29]  |
| Protean values-driven               | 9        | 4 407    | .09       | .06                   | .04                     | <b>.14</b>   | .09                     | .06                   | [.07, .21]  | [.06, .22]  |
| Overall protean orientation         | 9        | 4 408    | .16       | .05                   | .00                     | <b>.23</b>   | .07                     | .00                   | [.18, .28]  | [.23, .23]  |
| Psychological mobility              | 11       | 4 890    | .17       | .09                   | .07                     | <b>.23</b>   | .12                     | .09                   | [.15, .32]  | [.11, .36]  |
| Organizational mobility preferences | 10       | 4 527    | .08       | .05                   | .00                     | <b>.12</b>   | .07                     | .00                   | [.07, .17]  | [.12, .12]  |
| <b>Proactive personality</b>        |          |          |           |                       |                         |              |                         |                       |             |             |
| Protean self-directed               | 12       | 4 047    | .48       | .06                   | .04                     | <b>.59</b>   | .08                     | .05                   | [.54, .64]  | [.53, .66]  |
| Protean values-driven               | 10       | 3 312    | .27       | .04                   | .00                     | <b>.35</b>   | .06                     | .00                   | [.31, .39]  | [.35, .35]  |
| Overall protean orientation         | 15       | 4 672    | .46       | .07                   | .05                     | <b>.57</b>   | .09                     | .06                   | [.52, .62]  | [.48, .65]  |
| Baruch et al. (2005) scale          | 2        | 945      | .47       | .03                   | .00                     | <b>.58</b>   | .03                     | .00                   | [.47, .89]  | [.58, .58]  |
| Briscoe et al. (2006) scale         | 12       | 3 657    | .46       | .07                   | .05                     | <b>.57</b>   | .09                     | .06                   | [.51, .62]  | [.49, .65]  |
| Psychological mobility              | 11       | 3 616    | .47       | .03                   | .00                     | <b>.56</b>   | .04                     | .00                   | [.54, .59]  | [.56, .56]  |
| Organizational mobility preferences | 11       | 3 240    | .10       | .12                   | .11                     | <b>.13</b>   | .15                     | .13                   | [.02, .23]  | [-.06, .31] |
| <b>Self-efficacy</b>                |          |          |           |                       |                         |              |                         |                       |             |             |
| Protean self-directed               | 9        | 5 010    | .46       | .10                   | .09                     | <b>.56</b>   | .11                     | .10                   | [.47, .64]  | [.41, .70]  |
| Protean values-driven               | 6        | 3 601    | .29       | .14                   | .13                     | <b>.36</b>   | .17                     | .16                   | [.18, .54]  | [.12, .60]  |
| Overall protean orientation         | 12       | 5 099    | .42       | .15                   | .14                     | <b>.50</b>   | .17                     | .17                   | [.39, .62]  | [.28, .73]  |
| Baruch et al. (2005) scale          | 2        | 553      | .40       | .04                   | .00                     | <b>.48</b>   | .04                     | .00                   | [.40, .86]  | [.48, .48]  |
| Briscoe et al. (2006) scale         | 8        | 4 018    | .42       | .17                   | .16                     | <b>.51</b>   | .20                     | .19                   | [.34, .67]  | [.23, .78]  |
| Other scales                        | 2        | 528      | .43       | .00                   | .00                     | <b>.52</b>   | .00                     | .00                   | [.47, .56]  | [.52, .52]  |
| Psychological mobility              | 7        | 3 963    | .43       | .09                   | .08                     | <b>.50</b>   | .11                     | .09                   | [.41, .60]  | [.37, .64]  |
| Organizational mobility preferences | 3        | 2 150    | -.10      | .08                   | .07                     | <b>-.12</b>  | .10                     | .09                   | [-.37, .14] | [-.28, .05] |

Note. *k* = number of samples included in meta-analysis;  $\bar{r}$  = mean observed correlation; *SD<sub>r</sub>* = observed standard deviation of correlations; *SD<sub>res</sub>* = residual standard deviation of correlations after accounting for sampling error and unreliability;  $\bar{\rho}$  = mean correlation corrected for unreliability in both measures (in bold); *SD<sub>r\_c</sub>* = observed standard deviation of corrected correlations; *SD<sub>p</sub>* = residual standard deviation of corrected correlations; 95% CI = 95% confidence interval for  $\bar{\rho}$ ; 80% CV = 80% credibility interval for  $\rho$ ; Big Five correlations excluding outlier values from Rastgar, Ebrahimi, and Hesan (2014).

tean values-driven ( $\bar{\rho}$  = .36) and organizational mobility preferences ( $\bar{\rho}$  = -.12), with credibility intervals showing variability across samples. PBCO measure did not moderate overall protean relations with either proactive personality or self-efficacy.

Finally, in addition to hypothesized relations, protean self-directed, protean values-driven, and psychological mobility each showed consistent small to moderate relations with Agreeableness ( $\bar{\rho}$  = .26, .19, .33, respectively) and Emotional Stability ( $\bar{\rho}$  = .24, .14, .23, respectively).

### Incremental Validity

Hypothesis 9 predicted that incremental validity of PBCO over personality traits would be stronger for career-focused criteria. Results for these analyses are shown in Table 6. Together, the four PBCO components showed moderate incremental validity over the personality traits for job satisfaction (combined  $\Delta R^2$  = .06), but much larger incremental validity for career satisfaction ( $\Delta R^2$  = .15). PBCO also showed moderate incremental validity for career self-

Table 6  
Incremental Validity of Protean and Boundaryless Career Orientations

| Criterion                                      | Big Five + PP + SE + |      |      |                    |            |            |            |            |            |               |                     | N     |
|--|----------------------|------|------|--------------------|------------|------------|------------|------------|------------|---------------|---------------------|-------|
|  | Big Five             | PP   | SE   | Big Five + PP + SE | PS         | PV         | OP         | PsM        | OMP        | PS + PV + PsM | PS + PV + PsM + OMP |       |
| Career self-management and career satisfaction |                      |      |      |                    |            |            |            |            |            |               |                     |       |
| Career self-management (overall)               |                      |      |      |                    |            |            |            |            |            |               |                     |       |
| R  | .31                  | .35  | .39  | .44                | .48        | .44        | .45        | .46        | .44        | .51           | .51                 | 4 016 |
| R <sup>2</sup>                                 | .09                  | .12  | .15  | .19                | .23        | .19        | .20        | .21        | .19        | .26           | .26                 |       |
| ΔR <sup>2</sup>                                |                      |      |      |                    | .04        | .00        | .01        | .02        | .00        | .07           | .07                 |       |
| CI   |                      |      |      |                    | [.02, .06] | [.00, .01] | [.00, .02] | [.01, .03] | [.00, .01] | [.03, .12]    | [.03, .12]          |       |
| Career satisfaction                            |                      |      |      |                    |            |            |            |            |            |               |                     |       |
| R  | .39                  | .31  | .53  | .56                | .57        | .58        | .56        | .60        | .60        | .65           | .68                 | 4 366 |
| R <sup>2</sup>                                 | .15                  | .10  | .28  | .31                | .33        | .33        | .32        | .36        | .36        | .42           | .46                 |       |
| ΔR <sup>2</sup>                                |                      |      |      |                    | .02        | .02        | .00        | .05        | .05        | .11           | .15                 |       |
| CI   |                      |      |      |                    | [.00, .04] | [.00, .05] | [.00, .02] | [.00, .11] | [.01, .09] | [.03, .19]    | [.06, .23]          |       |
| Objective career success                       |                      |      |      |                    |            |            |            |            |            |               |                     |       |
| Salary/Salary growth                           |                      |      |      |                    |            |            |            |            |            |               |                     |       |
| R  | .22                  | .14  | .13  | .24                | .24        | .24        | .24        | .26        | .24        | .26           | .26                 | 3 837 |
| R <sup>2</sup>                                 | .05                  | .02  | .02  | .06                | .06        | .06        | .06        | .07        | .06        | .07           | .07                 |       |
| ΔR <sup>2</sup>                                |                      |      |      |                    | .00        | .00        | .00        | .01        | .00        | .01           | .01                 |       |
| CI   |                      |      |      |                    | [.00, .00] | [.00, .00] | [.00, .01] | [.00, .04] | [.00, .01] | [.00, .04]    | [.00, .04]          |       |
| Promotions/Hierarchical level                  |                      |      |      |                    |            |            |            |            |            |               |                     |       |
| R  | .23                  | .11  | .09  | .23                | .25        | .24        | .25        | .23        | .23        | .25           | .25                 | 3 864 |
| R <sup>2</sup>                                 | .05                  | .01  | .01  | .05                | .06        | .06        | .06        | .05        | .05        | .06           | .06                 |       |
| ΔR <sup>2</sup>                                |                      |      |      |                    | .01        | .00        | .01        | .00        | .00        | .01           | .01                 |       |
| CI   |                      |      |      |                    | [.00, .02] | [.00, .01] | [.00, .02] | [.00, .01] | [.00, .00] | [.00, .03]    | [.00, .03]          |       |
| Non-career-focused attitudes                   |                      |      |      |                    |            |            |            |            |            |               |                     |       |
| Job satisfaction                               |                      |      |      |                    |            |            |            |            |            |               |                     |       |
| R  | .38                  | .30  | .45  | .51                | .51        | .52        | .51        | .55        | .52        | .56           | .56                 | 4 406 |
| R <sup>2</sup>                                 | .15                  | .09  | .20  | .26                | .26        | .28        | .26        | .30        | .27        | .32           | .32                 |       |
| ΔR <sup>2</sup>                                |                      |      |      |                    | .00        | .01        | .00        | .04        | .01        | .06           | .06                 |       |
| CI   |                      |      |      |                    | [.00, .00] | [.00, .03] | [.00, .00] | [.01, .07] | [.00, .02] | [.02, .09]    | [.03, .09]          |       |
| Turnover intentions                            |                      |      |      |                    |            |            |            |            |            |               |                     |       |
| R  | .31                  | -.05 | -.18 | .32                | .32        | .39        | .34        | .40        | .55        | .45           | .60                 | 4 150 |
| R <sup>2</sup>                                 | .09                  | .00  | .03  | .10                | .10        | .15        | .11        | .16        | .30        | .21           | .36                 |       |
| ΔR <sup>2</sup>                                |                      |      |      |                    | .00        | .05        | .01        | .06        | .20        | .10           | .26                 |       |
| CI   |                      |      |      |                    | [.00, .01] | [.03, .07] | [.00, .03] | [.03, .09] | [.13, .26] | [.06, .15]    | [.19, .34]          |       |

Note. PP = proactive personality; SE = self-efficacy; PS = protean self-directed; PV = protean values-driven; OP = overall protean orientation; PsM = psychological mobility; OMP = organizational mobility preferences; ΔR<sup>2</sup> = change in R<sup>2</sup> over Big Five + proactive personality + self-efficacy; CI = 95% confidence interval around ΔR<sup>2</sup>; N = harmonic mean sample size across meta-analytic correlations for the full regression model.

management behaviors (ΔR<sup>2</sup> = .07). Consistent with their weak zero-order correlations with salary and promotions, PBCO showed negligible incremental validity for these criteria. Contrary to our expectations, PBCO also showed substantial incremental validity for turnover intentions (excluding potentially tautological relations with organizational mobility preferences, ΔR<sup>2</sup> = .10); primarily due to psychological mobility, which includes a desire for variety in one's work experiences.

### Discussion

This study quantitatively synthesized the literatures on protean and boundaryless career orientations (PBCO). A primary finding is that the self-directed, values-driven, and psychological mobility constructs are all substantially intercorrelated and related to proactivity-related traits (Openness, Extraversion, Conscientiousness) and self-efficacy. These career orientations show substantial predictive power for career satisfaction and self-management behaviors and incremental validity over proactivity and self-efficacy.

Importantly, organizational mobility preferences are tangentially related to other PBCO and show a divergent nomological net; they are a distinct construct.

### Implications for Career Research and Theory

This study sought to address critical questions about protean and boundaryless career orientations' structure, impact on career outcomes, and connections with other individual drivers of career behavior and success. Results have implications for future career research and theory in each of these areas.

**Reconsidering PBCO structure: Proactive career orientation and physical mobility preferences.** We found that relations among career orientation components do not support protean and boundaryless orientations as traditionally modeled and assessed. Self-directed, values-driven, and psychological mobility share a substantial general factor and have similar patterns of criterion and personality trait relations. Each facet is moderately to strongly related to proactive personality, self-efficacy, Openness,

Conscientiousness, and Extraversion. The consistency of these trait relations across protean and psychological mobility constructs suggests that their shared general factor reflects a broad tendency for individuals to take a confident, self-initiated, goal-directed approach toward their careers. On the basis of this convergent nomological net, we label this shared general factor “proactive career orientation.” The three facets of proactive career orientation share much of their variance (more than that shared by personality trait facets; cf. Connelly, Ones, Davies, & Birkland, 2014; Dudley et al., 2006), and it is likely that much of their predictive power stems from their shared features (Chen, Hayes, Carver, Laurenceau, & Zhang, 2012; Wiernik, Wilmot, & Kostal, 2015).

In contrast, physical mobility preferences are weakly related to other PBCO components and show a widely divergent nomological net. Despite their historical connections in career research, psychological and physical mobility clearly reflect distinct constructs with little in common. Grouping them together under the label of “boundaryless career” obscures their distinct natures (Feldman & Ng, 2007). Future research should investigate the antecedents and consequences of proactive career orientation and physical mobility preferences separately.

**Predicting career behaviors and outcomes.** Proactive career orientation components (self-directed, values driven, psychological mobility) showed substantial relations with career self-management behaviors and career satisfaction, supporting theories from protean and boundaryless career research predicting these career orientations as drivers of the ways individuals enact and evaluate their careers in contemporary organizations (Briscoe & Hall, 2006; Drenzo & Greenhaus, 2011; Hall et al., 2018). Compared with career satisfaction, proactive career orientation components showed weaker relations with non-career-focused job attitudes (job satisfaction and turnover intentions), highlighting the importance of conceptually aligning predictor and criterion constructs when developing and testing theories of career behavior and outcomes (Ajzen, 1991; J. Hogan & Roberts, 1996).

In contrast, proactive career orientation components and physical mobility preferences showed weak validity for indicators of objective career success (salary, promotions/hierarchical level). These findings are consistent with previous meta-analyses showing that dispositional factors have weak ability to predict objective career success (Ng et al., 2005). Ng et al. found that organizational sponsorship and human capital were more strongly related to salary and promotions than personality traits. The current meta-analyses extend these findings by showing that career orientations, constructs which are more conceptually aligned with career success than broad personality traits, are still weakly related to these criteria. Researchers seeking to understand objective success may benefit by focusing more on human capital and sponsorship antecedents.

Physical mobility preferences were also weakly related to physical mobility *behavior*. This finding is consistent with the cognitive-affective processing model of turnover and similar theories recognizing that dispositional characteristics are distal drivers of turnover and mobility decisions and are strongly moderated by a myriad of situational and contextual factors (Zimmerman, Swider, Woo, & Allen, 2016; cf. Lee, Mitchell, Holtom, McDaniel, & Hill, 1999; Podsakoff, LePine, & LePine, 2007). Mobility preference-behavior relations were, however, even weaker than relations observed between dispositional characteristics and turn-

over (Zimmerman, 2008). These weaker relations likely reflect that highly mobile careers remain quite rare, with a highly skewed distribution (Biemann, Fasang, & Grunow, 2011; Chudzikowski, 2012; Woo, 2011); studies in the present meta-analyses may not have had enough criterion variability to detect relations with career orientations. In future career research, theories of highly mobile careers must consider the full range of individual, organizational, occupational, and labor market factors that enable and encourage job-hopping or other frequent-mobility behaviors, and studies must adopt sampling and analytic methods that provide sufficient statistical power to detect career orientation-mobility behavior relations, such as contrast group sampling, logistic regression, or event history/survival analysis (G. King & Zeng, 2001; Tutz & Schmid, 2016; Woo, Chae, Jebb, & Kim, 2016).

**Integrating models of individual determinants of career behavior and outcomes.** The final research question of this study is whether and how models of protean and boundaryless career orientations can be integrated with broader models of the individual determinants of career behavior and success. Propositions of PBCO career models are often tested separately from models relying on other psychological characteristics, such as personality traits, and it is unclear whether PBCO-based and personality-based models should be regarded as complementary or competing explanations of career behavior. The results of this study can help to resolve this question.

We propose an integrative model that positions PBCO intermediary between broad personality traits and career behaviors and outcomes. On the basis of the PBCO-personality trait correlations observed in this study, we propose that individuals who are high on self-efficacy and proactivity are predisposed to adopt a proactive career orientation (that is, to want to set their own career goals and to feel confident pursuing novel career opportunities), particularly when their social and economic contexts and previous experiences support such attitudes (cf. propositions regarding domain-specific self-efficacy from social-cognitive career theory; Lent & Brown, 2013).<sup>3</sup> Individuals who adopt proactive career orientations, in turn, are more likely to enact behaviors to further their career goals and to evaluate their career progress positively. We argue that adopting a proactive career orientation is one mechanism through which individuals high on proactivity and self-efficacy express these traits in contemporary organizations characterized by more transactional, less secure employee-employer relationships. Models of proactive (protean) career orientation complement, rather than compete with, personality trait-based career theories.

Modern personality theories distinguish two broad classes of dispositional characteristics—traits and characteristic adaptations (DeYoung, 2015; cf. McAdams & Pals, 2006; McCrae & Costa, 2008). Traits are culturally universal patterns of responses to broad classes of stimuli present in human cultures over evolutionary time (DeYoung, 2015; cf. McCrae et al., 2005), whereas characteristic

<sup>3</sup> On the basis of weak relations between organizational mobility preferences and personality traits, we propose that physical mobility preferences are less driven by dispositional characteristics and more an outcome of social, economic, and lifetime-developmental factors.



adaptations are narrower responses to specific cultural and life circumstances (e.g., experiences of reduced job security; DeYoung, 2015). In our integrative framework, we classify PBCO as characteristic adaptations; they are a particular strategy individuals adopt to respond to experiences of reduced job security and career support in contemporary organizations (cf. Motowidlo, Borman, & Schmit, 1997; Rottinghaus & Miller, 2013). Distinguishing PBCO from personality traits can help inform when each perspective might be more fruitful for understanding and enhancing career outcomes. For example, compared to traits, characteristic adaptations are more malleable and responsive to interventions (DeYoung, 2015; McAdams & Olson, 2010; Savickas, 2011). Thus, short-term interventions to enhance career satisfaction by training proactive career orientation may be more effective (Verbruggen & Sels, 2008) than similar interventions targeting broad personality dispositions (Roberts et al., 2017).

### Implications for Career Counseling Practice

The strong relations of proactive career orientations to adaptive career behaviors and satisfaction suggest that career counseling clients can benefit from interventions to enhance career proactivity (cf. Verbruggen & Sels, 2008). For example, counselors can work with clients to set specific career goals that align with their values and to identify concrete actions they can take to progress toward these goals. Guided support for adopting self-directed career behaviors is likely to be particularly beneficial for clients low on proactivity and self-efficacy traits, who will be less predisposed to independently adopt such orientations. Importantly, the weak relations we found between proactive career orientations and mobility preferences and behavior indicate that the benefits of increasing career proactivity are not limited to clients interested in frequent job hopping or to those whose organizations do not support their career advancement. Indeed, the substantial relations observed between proactive career orientations and receiving organizational career support suggest that one way individuals proactively manage their careers is by eliciting career resources from their employers. Working with clients to specify their goals and identify career resources is a critical way counselors can promote career adaptation and satisfaction.

### Study Limitations

First, most studies of protean and boundaryless career orientations were cross-sectional. These studies can provide insight into the basic nomological relations of career orientations with outcomes and other individual differences, but they are limited in their ability to explore the critical role of time for career outcomes (Arnold & Cohen, 2008; Seibert & Kraimer, 2001; Shipp & Cole, 2015). *Career* is by definition a time-bound concept—it concerns individuals' sequence of choices and experiences over time, as well as their cumulative impacts (Arthur & Rousseau, 1996; Savickas, 2002). Longitudinal studies are critical for understanding the full picture of how career orientations drive individual career choices and their subsequent outcomes. Career development and objective and subjective success accumulate over time (Judge, Klinger, & Simon, 2010), and the importance of factors contributing to success may only be revealed with a cumulative, long-term perspective (Abele &

Spurk, 2009; Riketta, 2008; Zhu, Wanberg, Harrison, & Diehn, 2016). Longitudinal designs can also illuminate how career orientations' effects change over time. For example, does proactive career orientation lead to different self-management behaviors as individuals move from the exploration and establishment to the maintenance and retirement career stages (Super & Hall, 1978; Wang & Wanberg, 2017; Zacher & Frese, 2009)? Future longitudinal studies of career orientations are needed. Also needed are experimental studies exploring the efficacy of interventions to promote proactive career orientations and whether such programs contribute to enhanced career direction, satisfaction, and success.

Second, for some constructs, the number of studies available for meta-analysis was small. Individual studies in this literature tended to have large sample sizes and to report results with relatively little variability, so meta-analyses were based on large total sample sizes and showed narrow confidence intervals (Wiernik et al., 2017). These features can give us confidence in magnitudes of the mean correlations. However, we also estimated substantial true variability across studies in the relations between proactive career orientation components and several key criteria (e.g., career self-management behaviors, career satisfaction, turnover intentions). A variety of factors may explain this variability. For example, a proactive career orientation may lead to different strategies or attitudes for employees at early versus late stages of their careers or for employees in general versus more specialized occupations. These relationships are also likely impacted by contextual factors, such as labor market conditions and the degree of employee support provided by the organization. In a meta-analysis of PBCO and demographic characteristics, Kostal and Wiernik (2017) found small but not negligible curvilinear relations between employee age and PBCO, indicating that career orientations do change meaningfully across career stages. These findings highlight the importance of considering developmental and contextual factors when sampling for career orientation research. Unfortunately, most studies in this literature that could be included in the current analyses used samples that were heterogeneous in terms of organization, occupation, and career stage. Such designs make it difficult to examine moderating effects of contextual and developmental factors on career processes. Future studies should report results for homogeneous (sub)samples of employees in specific organizations, occupations, or career stages and provide rich descriptions of studies' contexts (Rousseau & Fried, 2001) to enable integrative reviews and meta-analyses to better examine these potential moderators of career orientations and their impacts on career outcomes (cf. Johns, 2006; Steel, Paterson, & Kammeyer-Mueller, 2017).

Finally, most studies of protean and boundaryless career orientations have used Briscoe et al.'s (2006) scales, potentially limiting the generalizability of some results based on features of these particular operationalizations (cf. the recent organizational justice literature, which has similarly focused on a select number of scales; Colquitt et al., 2013; Colquitt & Shaw, 2005). For example, weaker relations of many constructs with protean values-driven compared with other components of proactive career orientation may be due to the somewhat combative nature of the items on the Briscoe et al. (2006) scale (e.g., "In the past I have sided with my own values when the company has

asked me to do something I don't agree with.”).<sup>4,5</sup> Similarly, weak relations between mobility preferences and actual mobility behavior may reflect that all of the items on Briscoe et al.'s (2006) scale are reverse-coded, so it reflects more a “loyalty preference” to remain in one organization (Dries et al., 2012). Future career preferences research should use a wider range of operationalizations of career orientation constructs and ensure that scale items reflect the definitions and full scopes of their intended constructs (cf. Drenzo et al., 2015; Gubler et al., 2014a, 2014b; Shaffer et al., 2016).

## Conclusion

The protean and boundaryless career concepts have inspired much research on modern career development. This study has shown that orientations toward these career forms offer unique insight for understanding individuals' career-specific behaviors and attitudes, but also that much of their predictive power is shared with broad personality traits. Future research on PBCO will benefit by better connecting with other models of individual determinants of career behavior. Based on systematic analyses of criterion and construct relations, we propose a new integrative perspective positioning PBCO as one intermediary mechanism through which basic personality tendencies influence career behavior in contemporary organizations. We believe that our understanding of personality traits can inform our thinking about PBCO, and vice versa. Organizational research often suffers from balkanization of fields, even when they address the same phenomena (Baruch, Szűcs, & Gunz, 2015). Integrating diverse perspectives on drivers of career success can provide new insights and promote a more cohesive and cumulative science of careers.

## Data Availability

The meta-analytic database, analysis code, and supplemental material for this article are available online (see the [online supplemental material](#) and <https://osf.io/27dqf/>). These materials include (a) the study-level data that constitute the raw data for all the meta-analyses reported in this article (sample sizes, uncorrected correlations, reliability coefficients, and sample, study design, and measure characteristics); (b) meta-analytic correlation matrices, sample size matrices, and sampling error variance matrices used for the confirmatory factor analyses and incremental validity analyses; and (c) R code to reproduce all results reported in the article and produce forest plots for each meta-analysis.

<sup>4</sup> All included studies reporting personality trait and criterion correlations with protean values-driven used the Briscoe et al. scale, so we could not examine whether correlations with protean values-driven might be stronger with alternative operationalizations.

<sup>5</sup> This interpretation is supported by examining the results of regression models predicting each criterion using the three components of proactive career orientation (results are shown in Table S7 in the online supplemental material). In these models, the regression coefficient for values-driven represents the criterion relations of the unique parts of values-driven, controlling for its shared variance with self-directed and psychological mobility (cf. Wiernik et al., 2015). For all criteria, the values-driven regression coefficient was in the opposite direction as self-directed, the strongest indicator of the proactive career orientation general factor (see Figure 1). For example, for career satisfaction,  $\beta = .57$  for self-directed, but  $\beta = -.24$  for values-driven. This pattern suggests that endorsing the

unique aspects of the Briscoe et al. values-driven scale is associated with worse career outcomes. We suspect that this finding is due to the nature of the items used on the Briscoe et al. scale rather than a feature of the values-driven construct itself.

<sup>6</sup> Some of the sources included on the reference list reported results for variables other than those considered in the current study. For the current analyses, these sources contributed only reliability coefficients. Counts of sources, samples, and unique individuals reported in the Abstract and Method section do not include these sources.

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