DOI: 10.1002/tie.21949

WILEY

DIMENSIONS OF INTERNATIONAL BUSINESS

The effect of incentives on intrinsic motivation and employee attitudes: A multilevel study across nations and cultural clusters

Matthew J. Monnot

University of San Francisco, California

Correspondence
Matthew J. Monnot, School of Management, University of San Francisco, San Francisco, CA 94117
Email: mjmonnot@usfca.edu

In a study of employees across 29 nations and 9 of the 10 Global Leadership and Organizational Effectiveness (GLOBE) cultural clusters, the association between economic and psychological incentives and intrinsic motivation, job satisfaction, and organizational commitment were examined. Self-Determination Theory (SDT) is utilized to develop a theoretical model and then compare structural relationships across nations and cultural clusters. Results confirm the positive relationship between basic psychological needs and intrinsic motivation across all nations and cultures. However there is an effect of cultural cluster on the relationships between incentives and motivation, wherein external incentives are intrinsically motivating in Southern and Confucian Asian clusters. The implications for the design of incentive systems are discussed.

KEYWORDS

cross-cultural, international management, motivation, self-determination theory

1 | INTRODUCTION

Organizations are connected through a vast network of trade relationships. These relationships involve strategic reliance on export and import of merchandise, shared commercial services, and intermediate goods that constitute global value chains—all of which have displayed a growth trend in recent years. Trade is spread across many different nations and cultures, with developing economies accounting for 42 and 35% of world trade in merchandise and services in 2012, respectively (World Trade Organization [WTO], 2013). Trade relationships necessitate coordination between organizations and across borders. Coordination hinges on successful interaction of a motivated and committed international workforce. Most executives report that working across borders (such as teams in different geographies) has increased in recent years and that, likewise, international reporting relationships have also become more common. The same executives report that the primary focus of their Human Resource function has been and will continue to be retaining a committed workforce (KPMG International, 2012).

Additionally, shifting demographics and changing economies of developing countries have created demands for more skilled labor. Competitive differentials based on talent at the country level will continue to shift, necessitating relevant policy changes (e.g., education) (Lanvin & Evans, 2013). However, if current trends continue, analysts project a global shortfall of medium- and high-skilled labor in the coming years (Dobbs, Lund, & Madgavkar, 2012). Therefore, for organizations to remain competitive in the global economy, an understanding of individual, national, and cultural differences related to motivation will be critical.

Establishing effective reward systems demands an understanding of the effect of intrinsic and extrinsic motivators on employee attitudes. Early theories of motivation viewed extrinsic and intrinsic rewards as additive. It was recommended to design reward systems that facilitated both intrinsic and extrinsic motivators, which would lead to eventual greater satisfaction and performance (Porter & Lawler, 1968). Intrinsic motivation is of particular interest due to a greater association with satisfaction and well-being as compared to extrinsic incentives (Niemiec, Ryan, & Deci, 2009).

Unfortunately, studies of the effect of extrinsic versus intrinsic rewards on intrinsic motivation often provide equivocal evidence. Whereas a meta-analytic study suggests that tangible extrinsic rewards have no effect on self-report intrinsic motivation (Cameron & Pierce, 1994; Eisenberger & Cameron, 1996), a subsequent meta-analysis found that tangible rewards had a small negative effect on self-reported intrinsic motivation (Deci, Koestner, & Ryan, 1999), and yet another found that the effect of tangible rewards on intrinsic motivation ranged from null to slightly positive (Eisenberger, Pierce, & Cameron, 1999). The current study empirically examines a

model of basic psychological needs (intrinsic incentives) and economic incentives (extrinsic incentives) on subsequent intrinsic motivation. However, in the current study, culture is proposed as a contingency by which incentives are intrinsically motivating.

While previous studies have shown country and cultural effects on the mean level of job satisfaction (e.g., Morrison, Tay, & Diener, 2011) and organizational commitment (Fischer & Mansell, 2009; Meyer et al., 2012), the current study elucidates country and cultural cluster effects on the motivational antecedents of these important job attitudes. Additionally, whereas most previous studies of need fulfillment have examined general life satisfaction (e.g., Chirkov & Ryan, 2001; Chirkov, Ryan, & Willness, 2005; Tay & Diener, 2011), the current study examines the relationship between need fulfillment and satisfaction among employees.

The proposed structural model is tested across individuals, nations, and cultural clusters. Multilevel modeling is used to estimate within- and between-level variance to better approximate true effects. Finally, group effects of cultural cluster on basic psychological need importance and satisfaction are estimated.

2 | SELF-DETERMINATION THEORY

Early theories of motivation were dominated by basic needs, or drive, theories (e.g., Hull, 1943). The basis of these theories was that individuals strived to maintain homeostasis and that, when one of these drives was not met, the individual was then motivated to return to homeostasis. These early theories gave way to cognitive process theories of motivation, which emphasized goals, instrumentality of achieving goals, and the valuation of those goals. Self-Determination Theory (SDT) suggests that some of these goals are inherently linked to psychological needs (Deci & Ryan, 2000). According to SDT, creating incentive systems geared toward these goals and not others will result in greater motivation and ultimately higher performance. However, unlike earlier basic need or drive theories, SDT proposes that human motivation is driven to move beyond homeostasis to a point of flourishing and growth. Therefore, there are basic psychological needs that individuals naturally strive to continue to satiate. According to SDT, these basic psychological needs include competence, autonomy, and relatedness and are universal across all ages and cultures. When satisfied, these needs promote well-being and individual effectiveness.

Perhaps the most intuitive basic psychological need posited by SDT is competence. Competence involves the effective manipulation of one's environment and is likely to be an evolved characteristic necessary for survival. If humans did not possess an inherent pleasure with the application of ability, it is likely that specific inherited skill sets would not be discovered and therefore genetic advantage would not come to fruition (Deci & Ryan, 2000). The natural tendency to explore and manipulate one's environment is likely a genetic benefit for survival, and therefore has likely evolved into a basic psychological need. This propensity for competence narrows in focus as one interacts with one's environment. For example, individuals choose to focus their efforts on enacting a set of skills associated with a career. Therefore, one's career ideally acts to satiate the need for competence (e.g., Baard, Deci, & Ryan, 2004).

The theoretical link between competence and intrinsic motivation has been confirmed empirically, with those activities that are optimally challenging being intrinsically motivating (e.g., Danner & Lonky, 1981). This process is self-enhancing as it seems that optimal challenges lead to successful performance, which in turn lead to a greater sense of competence (Ryan, 1982).

The second basic psychological need as defined by SDT is autonomy. When individuals act with a sense of agency and volition, they are enacting autonomous behavior. It is the opposite of servility, and according to SDT, it is a fundamental psychological need (Ryan & Deci, 2006; Ryan, Kuhl, & Deci, 1997). In contrast to feeling pressured to work, the autonomous employee chooses to the engage in work typically for autotelic reasons. SDT suggests that those employees who are engaging in their work autonomously will display higher levels of satisfaction and performance because they are satiating a basic psychological need.

Early experiments on monetary incentives proved counterintuitive in that intrinsic motivation was actually below baseline after reward (e.g., Deci, 1971). These early experiments suggested a unique relationship between incentives and motivation. Extrinsic rewards seem to crowd out, or diminish, initial intrinsic reward mechanisms. This finding has been widely replicated (Deci et al., 1999). Ultimately, this led to the basic psychological need proposed by SDT—autonomy. Autonomy is a broadly applicable self-regularly mechanism that has evolved to suit adaptive behavior (Deci & Ryan, 2000). Recent research suggests that autonomous behavior is associated with greater well-being (Chirkov, Ryan, Kim, & Kaplan, 2003; Ferguson, Kasser, & Jahng, 2011; Lynch, La Guardia, & Ryan, 2009) as well as higher levels of work engagement (Deci et al., 2001).

Finally, SDT posits that relatedness is a third basic psychological need. Something is classified as a basic psychological need, according to SDT, to the extent that satiation promotes psychological health and deprivation undermines psychological health. The positive effects of secure relational attachments have been shown to be important from very early in life and across the one's life span (Ryan & La Guardia, 2000) and are predictive of daily well-being (Reis, Sheldon, Gable, Roscoe, & Ryan, 2000). Secure relational attachment is associated with exploratory behavior, which is considered to be an intrinsically motivated action (Frodi, Bridges, & Grolnick, 1985). Students, for example, who report a warm and caring relationship with their teacher exhibit greater intrinsic motivation in the classroom (Ryan, Stiller, & Lynch, 1994). Like competence and autonomy, relatedness is also an important predictor of intrinsic motivation and eventual individual outcomes. A comprehensive theoretical and empirical review of SDT suggests that these three basic psychological needs are distinct yet interrelated and have incremental predictive validity on dependent measures of psychological growth and well-being (Van den Broeck, Ferris, Chang, & Rosen, 2016).

3 | BASIC PSYCHOLOGICAL NEEDS AT WORK

Satiation of basic psychological needs is not only a determinate of intrinsic motivation, but it is also an important eventual determinant

of well-being. Need (i.e., autonomy, competence, relatedness) fulfillment is related to daily positive affect and vitality (Reis et al., 2000; Sheldon, Ryan, & Reis, 1996), mental and physical well-being (Kasser & Ryan, 1999), lower anxiety, and general well-being, as well as higher job satisfaction and lower perceived safety threats (Lynch, Plant, & Ryan, 2005). The accomplishment of intrinsically rewarding goals are associated with greater life satisfaction and well-being in general when compared to extrinsically rewarding goals (Niemiec et al., 2009).

There are numerous studies suggesting that fulfillment of basic psychological needs are associated with positive individual outcomes and fulfillment of external, or extrinsic, aspirations are associated with neutral or negative outcomes. In fact, compared to people who emphasize intrinsic motives (e.g., personal growth), those individuals whose aspirations are extrinsic (e.g., money, fame) display less self-actualization and vitality, greater depression, higher levels of anxiety, poorer relationships, lower social functioning (Kasser & Ryan, 1993, 1996), lower self-esteem, lower levels of self-actualization (Sheldon & Kasser, 1995), more superficial processing of information, less persistence, and lower task performance (Vansteenkiste, Simons, Lens, Sheldon, & Deci, 2004). Therefore, intrinsic motivation is the mediator through which satiation of basic psychological needs (i.e., competence, autonomy, relatedness) lead to satisfaction and well-being. Given the focus on employees in the current study, satisfaction at work is examined as the outcome of intrinsic motivation.

Job satisfaction is one of the most widely researched attitudes in organizational research. The relationship of job satisfaction with individual job outcomes has long been a concern among scientists and practitioners (Iaffaldano & Muchinsky, 1985; Judge & Bono, 2001). Previous researchers have argued that job satisfaction acts as a mediator between individual antecedents and organizational commitment (Porter, Steers, Mowday, & Boulian, 1974), which has been confirmed in subsequent empirical efforts (Mowday, Porter, & Steers, 1982). Therefore, in the current study, job satisfaction is expected to mediate the relationship between intrinsic motivation and organizational commitment (see Figure 1).

The well-established tripartite model of organizational commitment espoused by Porter and colleagues (Mowday, Steers, & Porter, 1979; Porter et al., 1974) was adopted for the current study. This definition includes three major components, which include (a) a strong belief in and acceptance of organizational goals, (b) willingness to exert considerable effort on behalf of the organization, and (c) a desire to maintain membership in the organization. This specific conceptualization of organizational commitment is related to a wide range of individual outcomes, such as performance and turnover (Meyer, Stanley, Herscovitch, & Topolnytsky, 2002).

3.1 | The study of basic psychological needs across nations

According to SDT, basic psychological needs (i.e., autonomy, relatedness, and competence) are universal and part of an evolved human nature. While some evidence has emerged for the universality of basic psychological needs, it is necessary to test the robustness of this framework across national and cultural boundaries (Deci & Ryan, 2012). It is likely that the normative environments that exist across nations and cultures will moderate the expressions and outcomes of need fulfillment (Deci & Ryan, 2000). Likewise, the distinction between nation and culture is important. There is extensive evidence that basic psychological needs have similar functions across nations, but there is a lack of literature on the function of basic psychological needs across cultural cluster. Cultural clusters group societal populations based on an amalgamation of cultural values and artifacts (House, Hanges, Javidan, Dorfman, & Gupta, 2004) rather than national borders or geographic proximity (Furnham, Kirkcaldy, & Lynn, 1994). Therefore, in the current study, variation across both nations and cultural clusters is assessed by way of assessing variance of the proposed theoretical model across clusters of data.

It appears that the needs proposed by SDT seem to function rather consistently in cross-national comparisons. When asked to recall one's most satisfying moment in the past month, individuals in the United States and South Korea report events associated with autonomy, competence, and relatedness (Hahn & Oishi, 2006). These three basic psychological needs have shown to be important antecedents of well-being in both Brazil and Canada (Chirkov & Ryan, 2001; Chirkov et al., 2005). Evidence for a relationship between autonomy and well-being has been shown in a variety of studies comparing individuals in China, Russia, the United States (Lynch et al., 2009), South Korea, Turkey (Chirkov et al., 2003), and Denmark (Ferguson et al., 2011). While the application of SDT to empirical studies in the employment setting has been relatively meager (Gagné & Deci, 2005), there are some studies that have found support for generalizability to the employment setting. For example, satisfaction of needs for competence, autonomy, and relatedness has been shown to act as an antecedent of engagement and well-being at work in the United States and Bulgaria (Deci et al., 2001). In fact, employee preference for intrinsic benefits (e.g., opportunity to use one's ability) over extrinsic motivators (e.g., income, job security) is associated with

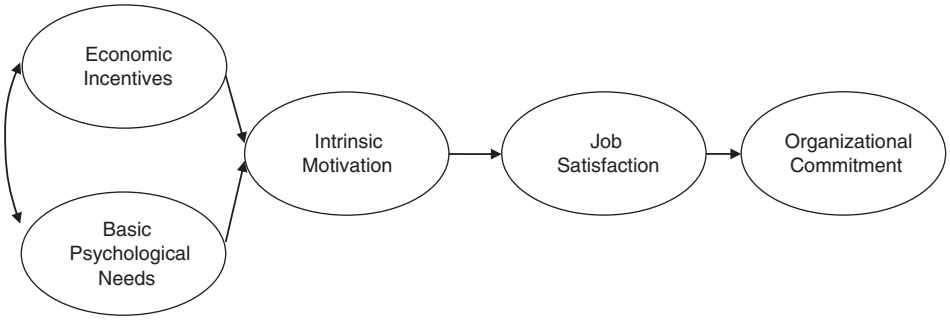

FIGURE 1 Theoretical model proposed in the current study

greater job and life satisfaction, less emotional exhaustion, and lower likelihood of turnover (Vansteenkiste et al., 2007). The benefits of valuing intrinsic over extrinsic incentives have shown to be consistent with citizens and employees in Belgium, the United States, Russia (Ryan et al., 1999), and Germany (Schmuck, Kasser, & Ryan, 2000). Therefore, while the hypothesized model will take into account cross-national differences in structural relationships, the predictive pathway between basic psychological needs, intrinsic motivation, and job satisfaction is expected to be robust.

> **Hypothesis 1:** *Basic psychological needs will display a positive effect on organizational commitment, through the mediating variables of intrinsic motivation and then job satisfaction, across all countries.*

3.2 | The study of basic psychological needs across cultures

A comprehensive review (Van den Broeck et al., 2016) of SDT research suggests that cross-cultural assessment of basic psychological needs in lacking. While authors (Ryan & Deci, 2000) assert that SDT is a universal theory, there are few cross-cultural studies (e.g., Chen et al., 2015) and even fewer focused specifically on employees living in collectivist cultures (e.g., Monnot, 2017). Therefore, in the present study, culture is hypothesized to influence the significance and direction of the effect that different motivators have on intrinsic motivation. Basic psychological needs are hypothesized to be significant antecedents of intrinsic motivation across all cultural clusters, but the effect of extrinsic rewards (i.e., economic incentives) is contingent on regional cultural cluster. It is proposed that culture can, in part, explain the previous contradictory findings that extrinsic rewards have no effect (Cameron & Pierce, 1994; Eisenberger & Cameron, 1996) versus a positive effect (Eisenberger, Pierce, & Cameron, 1999) on intrinsic motivation.

Cultural socialization practices and customs ascribe important values associated with identity. These customs can configure a self, or identity, that seeks alignment or independence with others. Arguably the most pronounced cultural differences in views of the self are between those regions that have been termed East Asian and Western nations. The hallmark cultural distinction between these two regions involves the way in which societal members relate to one another (see Earley & Gibson, 1998, for review) or how the individual views the self (Triandis & Bhawuk, 1997). The model of the self in Western (i.e., individualist) cultural contexts has been referred to as "independent self-construal" (Markus & Kitayama, 1991) and assumes the individual is separate from his or her social context. One's internal abilities, characteristics, and preferences are both stable and independent from society. Therefore, one seeks situations and outcomes that verify, enhance, and express one's individual abilities, characteristics, and preferences. In contrast, in East Asian cultures, the self is viewed from a holistic perspective (i.e., collectivist) wherein the individual is one part of an interconnected whole (Nisbett, Peng, Choi, & Norenzayan, 2001). Consequently, one's abilities, characteristics, and preferences are viewed as fluid concepts that are dependent on the social environment. This is referred to as "interdependent self-construal" (Markus & Kitayama, 1991), wherein the important characteristics of the individual are external to oneself. The features that direct and motivate one's behavior are therefore external to the individual.

Interdependent self-construal fosters internalization of societal values. Therefore, individuals in East Asian cultures are more likely to display a greater internalization of external motives. SDT suggests that intrinsic motivation results in part from expression of one's own volition or uniqueness (Deci & Ryan, 2000). Because the self is wedded to the external environment in East Asian cultures, it is expected that both external and internal incentives will enhance intrinsic motivation. For example, scholars have demonstrated that collectivists demonstrate socially oriented achievement. High levels of socially oriented achievement are associated with values that include diligence and achievement that please the in-group. For instance, the Socially Oriented Achievement Scale includes an item that states, "A major goal in my life is to work hard, to achieve something which will make my parents proud of me" (Yu & Yang, 1994). In fact, Chinese employees, relative to U.S. employees, display a stronger orientation toward economic goals (e.g., profit, sales, productivity) rather than humanistic goals (e.g., employee development and growth, employee satisfaction) (Chen, 1995). Therefore, in the current study, economic incentives are expected to have no effect on intrinsic motivation in Western cultures, whereas in East Asian cultures this effect will be positive. In the current study, Eastern and Western cultures are assessed by way of the Global Leadership and Organizational Effectiveness (GLOBE) cultural clusters.

4 | CULTURAL CLUSTERS

Many studies have equated national border with cultural distinction (e.g., Chirkov et al., 2003). While national status is certainly an indicator of culture it should be part of a milieu of indicators. It is more likely that multiple characteristics of the social environment constitute culture rather than national boundaries. In fact, a criticism of earlier empirical work on independent and interdependent self-construal is that national borders were studied as antecedents of differences in cognition, emotion, and motivation (Matsumoto, 1999). The criticism pointed out is that the theory of self-construal suggests culture leads to self-construal, which then leads to outcomes. Likewise, conflicting results of previous research on self-construal and individualism versus collectivism between nations (e.g., Matsumoto, Weissman, Preston, Brown, & Kupperbusch, 1997; Takano, & Sogon, 2008) suggest this assumption may be flawed. In an attempt to more accurately group citizens by cultural differences, scholars have clustered nations according to geographic proximity (Furnham et al., 1994) religious and linguistic attributes (Cattell, 1950), attitudes (Haire, Ghiselli, & Porter, 1966), work goals (Ronen & Kraut, 1977), and espoused values (Hofstede, 1976). The most recent comprehensive and rigorous effort to define global cultural clusters based on culture was conducted by the GLOBE researchers (House et al., 2004). Therefore, the current study uses GLOBE clusters as proxies for differences in individualism and collectivism.

The GLOBE researchers first utilized the results of previous studies (e.g., Ronen & Kraut, 1977), similarities in language, geography, religion, and historical research to develop a list of 10 hypothesized global cultural clusters. They developed and validated a scale of espoused values and artifacts that characterize and distinguish societies across the globe. They then used discriminant function analysis to confirm that the survey data fit the hypothesized clusters. The survey respondent data represents roughly 17,000 middle managers from 951 different organizations across 62 societies (Gupta, Hanges, & Dorfman, 2002).

4.1 | Southern and Confucian Asia cultural clusters

The 10 cultural clusters identified by House et al. (2004) resulted in two meta-clusters: the Western region (i.e., Latin America, Latin Europe, Anglo, Germanic Europe, and Nordic Europe) and the Eastern region (i.e., Eastern Europe, sub-Saharan Africa, Middle East, Southern Asia, and Confucian Asia). Each meta-cluster is further bisected, resulting in four unique quadrants. One quadrant is composed of two clusters, Southern Asia (i.e., India, Indonesia, Iran, Malaysia, Philippines, and Thailand) and Confucian Asia (i.e., China, Hong Kong, Japan, Singapore, South Korea, and Taiwan), and is an exemplar of interdependent self-construal (Gupta & Hanges, 2004; Hanges & Dickson, 2004). These two Asian cultural clusters share a unique, statistically determined configural space due to a shared amalgamation of sociocultural characteristics. In particular, Southern and Confucian Asia clusters are most readily discernable from other clusters by their stronger collectivist practices and deep connection to groups and communities (Gelfand, Bhawuk, Nishi, & Bechtold, 2004).

The value dimension that is particularly definitive of the Southern Asia and Confucian Asia cultural clusters, and one that has received considerable attention in empirical research is collectivism. In fact, the individualism–collectivism continuum is a dimension that has surfaced in multiple widely accepted cultural value frameworks (Hofstede, 1980; House et al., 2004; Schwartz & Bilsky, 1990; Smith, Dugan, & Trompenaars, 1996; Triandis, 1995).

Higher levels of self-interest, independence, self-reliance, and preference for loose-knit social networks generally characterize individualist cultures. Interdependence, cohesive social groups, and an identity that emphasizes one's position in relation to others define collectivist cultures. Therefore, highly individualist cultures are likely to find those incentives that are concordant with self-interested goals, and not those that are extrinsic in nature, to be intrinsically motivating. Like individualist cultures, highly collectivist cultures are likely to find incentives that are concordant with self-interested goals as being intrinsically motivating, too. However, unlike individualist cultures, collectivist cultures are also likely to experience external incentives as intrinsically motivating because such incentives are part of the relational world and thus one's interconnected identity.

The GLOBE studies delineate two types of collectivism—institutional collectivism and in-group collectivism. In-group collectivism—most relevant to the current study—involves expression of pride, loyalty, and interdependence with family. It should be noted that the GLOBE researchers also distinguished between practices ("as is") versus values ("should be"). However, one additional difference between in-group practices versus in-group values is that the former focused on kin, whereas the later included society as a whole. Therefore, in-group collectivism practices are most relevant to the current hypothesis because it is most relevant to the aforementioned concepts of social achievement orientation and interdependent self-construal. Finally, results suggest convergent and divergent validity evidence between in-group collectivism practices and Hofstede's individualism scale, Schwartz's embeddedness value scale, Schwartz's intellectual autonomy value scale, and Schwartz's affective autonomy value scale. This convergent validity is important because countries within the Southern Asia and Confucian Asia GLOBE cluster countries also tend to score highly on these related scales (Gelfand et al., 2004).

> **Hypothesis 2:** *Economic incentives will be significantly positively related to intrinsic motivation for the Southern Asia and Confucian Asia clusters.*

5 | METHODS

5.1 | Sample

Data was drawn from the *International Social Survey Programme: Work Orientation III—ISSP 2005* (ISSP Research Group, 2013). A total of 39,298 individuals from 29 different countries were coded into 9 of the 10 GLOBE cultural clusters (the available data included only countries within 9 clusters). A total of 17,807 men and 21,443 women (48 missing values) ranging in age from 15 to 98 (m = 46.22, SD = 16.99) working an average of 40.5 hours (SD = 13.48) per week were represented. Most respondents (22,986) reported being married or living as married, followed by single (9,464), widowed (3,145), and divorced (2,612).

5.2 | Measures

5.2.1 | Economic incentives

Economic incentives were assessed in the form of perceived job security and income level. Asking respondents to indicate their agreement with the statement, "My job is secure," assessed job security. Asking respondents to indicate their agreement with the statement, "My income is high," assessed income. Response options were coded on a 5-point scale ranging from "strongly disagree" to "strongly agree."

5.2.2 | Basic psychological needs

SDT defines three basic psychological needs, which are competence, autonomy, and relatedness. Competence was assessed by asking respondents to indicate their agreement with the statement, "How much of your past work experience and/or job skills can you make use of in your present job?" Asking respondents to indicate their agreement with the statement, "I can work independently," assessed autonomy. Relatedness was assessed with two items about relations at their workplace. First, respondents were asked, "In general, how would you describe relations will at your workplace between

management and employees?" Second, respondents were asked, "In general, how would you describe relations at your workplace between workmates/colleagues?" Likert scale response options were utilized for each. These needs were modeled as indicators of an overall latent variable, which is in psychometric accord with previous research (Chen et al., 2015; Rosen, Ferris, Brown, Chen, & Yan, 2014; Van den Broeck, Vansteenkiste, De Witte, & Lens, 2008).

5.2.3 | Intrinsic motivation

SDT is an organismic integration theory and therefore delineates various types of extrinsic motivation based on the extent to which it has been internalized, and therefore the extent to which is approximates intrinsic motivation. Intrinsic motivation is defined exclusively by interest in the task itself. Therefore, given the narrowly defined nature of intrinsic motivation (Sackett & Larson, 1990), it was assessed in the current study by asking respondents to indicate their agreement with the statement, "My job is interesting." Response options were coded on a 5-point scale ranging from "strongly disagree" to "strongly agree."

5.2.4 | Job satisfaction

A global single item was used to assess satisfaction with one's job, which has been shown to be an efficient and acceptable measure (Wanous, Reichers, & Hudy, 1997). Respondents were asked, "How satisfied are you in your (main) job?" and response options involved a 7-point scale ranging from "completely dissatisfied" to "completely satisfied."

5.2.5 | Organizational commitment

The definition of organizational commitment espoused by Porter and colleagues (Porter et al., 1974) was adopted for the current study. This definition includes three major components: (a) a strong belief in and acceptance of organizational goals, (b) willingness to exert considerable effort on behalf of the organization, and (c) a desire to maintain membership in the organization. Therefore, the first component was assessed by asking respondents, "To what extent do you agree or disagree with the following statement? I am proud to be working for my firm or organization." The second component was assessed using the item, "To what extent do you agree or disagree with the following statement? I am willing to work harder than I have to in order to help the firm or organization I work for succeed." The third component of commitment was assessed using responses to the item, "To what extent do you agree or disagree with the following statement? I would turn down another job that offered quite a bit more pay in order to stay with this organization." Response options for all three items were rated on a 5-point scale ranging from "strongly disagree" to "strongly agree."

5.3 | Analyses

To test the hypothesized model, fit indices associated with both the measurement and structural model were examined. Suggested cutoffs close to or below .08 for standardized root mean square residual (SRMR), .06 for root mean square error of approximation (RMSEA), and at or above .95 for both non-normed fit index (NNFI) and comparative fit index (CFI) indicate adequate fit (Hu & Bentler, 1999). Significant structural coefficients in the expected direction and adequacy of model fit were used to test the overall framework (Figure 1) described above.

To assess Hypothesis 1 a two-level structural equation model (SEM) with random intercepts was assessed. First, multilevel structural models were utilized to examine and account for nonindependence resulting from national differences. Sizable intraclass correlation coefficients (ICCs) have conventionally been used as indicators of potential bias caused by cluster level variation. While multilevel studies typically report ICC values between .15 and .30 (Mathieu, Aguinis, Culpepper, & Chen, 2012) or .05 and .20 (Peugh, 2010), depending on the field, there isn't a convention for significance. Empirical evidence suggests that it is more important to consider the design effect. Design effect can be approximated by 1 + (average cluster size-1)*ICC, wherein a value of 2 is considered significant (Muthén & Satorra, 1995). Therefore, in the current study, design effects were considered prerequisite evidence for nonindependence.

Finally, to test Hypothesis 2, an examination of the effect of cultural cluster membership was necessary. Again, a design effect was used to indicate the presence of nonindependance (Muthén & Satorra, 1995). However, the number of GLOBE clusters is too few to construct a three-level structural model that produces reliable estimates (Hox, 2010). As an alternative, a nested multiple-group SEM was constructed, wherein significant chi-square change statistics after freeing structural coefficients would indicate a lack of invariance. Specifically, significance is determined by a chi-square difference value using the difference in degrees of freedom from the original and nested model for the significance value (Yuan & Bentler, 2004). A significantly better fitting model with freed paths between basic psychological needs to intrinsic motivation, and intrinsic motivation to job satisfaction is supportive of variance in the linkages related to the hypothesized portion of the model. Second, if the freed model fits significantly better, the SEM should be estimated separately for each GLOBE cultural cluster. Finally, a significant path coefficient between external incentives and intrinsic motivation among Southern and Confucian clusters provide support for Hypothesis 2.

6 | RESULTS

Descriptive statistics and correlations between observed and latent variables are presented in Table 1. Additionally, means and standard deviations for all measures by cultural clusters are provided in Table 2. Zero-order correlations between hypothesized exogenous (including indicators) and endogenous variables are presented in Table 3. The zero-order correlations between economic incentives and job satisfaction ranged from .26 (Latin Europe) to .33 (Southern Asia). The relationship between economic incentives and intrinsic motivation ranged from .26 (Germanic Europe) to .49 (Southern Asia). Finally, the relationship between economic incentives and organizational commitment ranged from .18 (Latin Europe) to .41 (sub-Saharan Africa). Correlations between basic psychological needs and endogenous variables ranged from .30 (Southern Asia) to .52 (Nordic Europe and Latin Europe) with job satisfaction, from .25 (Southern

TABLE 1 Descriptive statistics and correlations of all observed and latent variables and cluster intraclass correlation coefficients

Variables	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. JSEC	3.61	1.14														
2. Income	2.73	1.09	.335													
3. Econ	3.16	0.91	.826	.808												
4. CP	2.75	1.03	.102	.122	.137											
5. AUT	3.77	1.09	.155	.193	.212	.208										
6. R1	3.88	0.92	.178	.172	.215	.111	.175									
7. R2	4.17	0.75	.135	.103	.145	.103	.151	.537								
8. BPN	3.65	0.60	.225	.243	.286	.595	.657	.672	.625							
9. INT	3.80	1.00	.238	.281	.316	.291	.401	.243	.232	.469						
10. JOBSAT	3.35	1.03	.245	.279	.322	.182	.254	.423	.337	.462	.448					
11. OC1	2.79	1.25	.181	.231	.252	.090	.194	.302	.174	.293	.278	.361				
12. OC2	5.18	1.51	.116	.195	.189	.116	.213	.324	.207	.333	.281	.312	.335			
13. OC3	3.73	0.96	.234	.240	.291	.198	.280	.400	.285	.448	.449	.468	.436	.536		
14. OC	3.88	0.98	.214	.278	.300	.162	.285	.427	.274	.443	.411	.472	.740	.832	.790	
Within Level	M Cluster															
Country	776		0.03	0.05		0.06	0.12	0.04	0.04		0.07	0.06	0.04	0.07	0.11	
Between Level																
Culture	2,514		0.01	0.0		0.03	0.05	0.01	0.01		0.04	0.05	0.01	0.04	0.04	

Note. Variables are abbreviated as JSEC = Job Security, Income = Reported Level of Income, Econ = Economic Incentives latent variable, CP = Competence, AUT = Autonomy, R1 = Relatedness with supervisors, R2 = Relatedness with coworkers, BPN = Basic Psychological Needs latent variable, INT = Intrinsic Motivation, JOBSAT = Job Satisfaction, OC1 = Desire to stay with organization, OC2 = Pride in organization, OC3 = Willingness to exert effort for organization, OC = Organizational Commitment latent variable, ICC = intraclass correlation coefficient. Culture is the cultural cluster as defined by the Global Leadership and Organizational Effectiveness (GLOBE) studies. n = 21,281 to 24,595. All correlations = $p < .001$.

TABLE 2 Means and standard deviations of model variables in the current study for each cultural cluster

	Variables				
Region	ECON	BPN	INT	JOBSAT	OC
World (22,603)	3.16 (0.91)	3.65 (0.60)	3.80 (1.00)	3.35 (1.03)	3.88 (0.98)
Anglo Cultures (4,744)	3.23 (0.86)	3.79 (0.57)	3.93 (0.92)	3.45 (0.99)	4.05 (0.90)
Nordic Europe (3,875)	3.22 (0.88)	3.80 (0.56)	3.99 (0.91)	3.39 (0.98)	3.76 (0.98)
Germanic Europe (1,721)	3.19 (0.86)	3.73 (0.57)	3.97 (0.89)	3.35 (0.95)	3.90 (0.87)
Latin Europe (3,443)	3.07 (0.92)	3.59 (0.63)	3.91 (1.02)	3.35 (1.02)	3.76 (1.04)
Latin America (696)	3.32 (0.91)	3.73 (0.58)	3.99 (0.98)	3.95 (0.97)	4.26 (0.93)
Eastern Europe (3,785)	3.08 (0.93)	3.45 (0.60)	3.56 (1.05)	3.18 (1.09)	3.57 (1.03)
Sub-Saharan Africa (895)	3.11 (1.06)	3.52 (0.67)	3.55 (1.16)	3.71 (0.94)	4.12 (1.01)
Southern Asia (636)	3.37 (1.00)	3.63 (0.52)	3.81 (0.91)	3.79 (1.09)	4.21 (0.81)
Confucian Asia (2,808)	3.06 (0.92)	3.46 (0.55)	3.41 (1.04)	3.00 (0.98)	4.06 (0.90)

Note. Variables are abbreviated as ECON = Economic Incentives, BPN = Basic Psychological Needs, INT = Intrinsic Motivation, JOBSAT = Job Satisfaction, OC = Organizational Commitment. Culture is the cultural cluster as defined by the Global Leadership and Organizational Effectiveness (GLOBE) studies (sample size in parentheses). All correlations = $p < .001$.

Asia) and .52 (Germanic Europe) with intrinsic motivation, and from .31 (Latin America) to .50 (sub-Saharan Africa) (Table 3).

Before testing hypotheses by way of the structural model, a measurement model was assessed to confirm appropriate specification of latent variables. Job satisfaction and intrinsic motivation are modeled as latent variables, which is essentially a hybrid model wherein observed variables are treated as latent variables. Therefore, these indicators function as corrected observed variables (Sass & Smith, 2006). Model fit indices were generally acceptable for the hypothesized measurement model: χ^2 (40, N = 22,624) = 5,396.95, $p < 0.0$, RMSEA = .06, CFI = .91, NNFI = .87, SRMR = .06. However, modification indices suggested allowing both affiliation indicators (i.e., supervisor and coworker) to covary, which provided an appreciable improvement to fit: model: χ^2 (40, N = 22,624) = 3,081.23, $p < 0.0$, RMSEA = .04, CFI = .95, NNFI = .93, SRMR = .03. This met the criteria for excellent fit in three of four fit cutoffs (Hu & Bentler, 1999). Additionally, each of the factor loadings on its respective latent factor was significant at $p < .001$. Thus, the confirmatory factor analysis supports the proposed measurement model.

Next, the hypothesized structural model was assessed. The hypothesized model produced generally acceptable fit indices: χ^2 (40, N = 22,624) = 3,550.94, $p < 0.0$, RMSEA = .06, CFI = .94, NNFI = .92, SRMR = .03 (Hu & Bentler, 1999). The positive relationship between basic psychological needs and intrinsic motivation offers support for Hypothesis 1. In an exploratory attempt to further refine the model an assessment of the fit of competing models was conducted. The first competing model involved freeing a path from basic psychological needs to job satisfaction [χ^2 (39, N = 22,624) = 3,536.46, $p < 0.0$, RMSEA = .06, CFI = .94, NNFI = .92, SRMR = .03]. An additional competing model was examined to further examine the adequacy of the hypothesized model, which involved freeing a path from economic incentives to job satisfaction [χ^2 (39, N = 22,624) = 4,616.72, $p < 0.0$, RMSEA = .07, CFI = .92, NNFI = .89, SRMR = .04]. The negligible change in fit supports the hypothesized parsimonious model.

The model was examined at multiple levels as defined by individuals and country. Specifically, the data were modeled at the individual (within) and country level (between). Sizable ICCs have conventionally been used as indicators of potential bias caused by cluster level variation. In the current study, ICCs ranged from .03 (job security) to .l2 (autonomy) (Table 1). The average cluster size in the current study at the country level was 776, and therefore the design effect ranges from 24 to 94. This is far above the rule-of-thumb significant design effect. Therefore, variation at the national cluster level suggests potential nonindependence.

Fit indices of the single-level SEM model: χ^2 (40, N = 22,624) = 3,550.94, $p < 0.0$, RMSEA = .06, CFI = .94, NNFI = .92, SRMR = .03, Akaike information criterion (AIC) = 720,304.41, were worse than the two-level model: χ^2 (81, N = 22,624) = 1,744.75, $p < 0.0$, RMSEA = .03, CFI = .92, NNFI = .89, SRMR = .03, AIC = 707,174.47. Therefore, a multilevel model is supported over a single-level model. All factor loadings and structural coefficients at the individual level of the two-level SEM model are significant (Table 4; Figure 2). Examination of the second-level country cluster SEM model suggests several nonsignificant factor loadings and structural coefficients (Figure 3). The path from economic incentives to intrinsic motivation is not significant (β = .91, SE = .78, $p > .05$) (Table 4). The path from basic psychological needs to intrinsic motivation is not significant (β = .66, SE = .48, $p > .05$). This provides support for Hypothesis 1, as it suggests that basic psychological needs do not have an effect on job satisfaction as mediated by intrinsic motivation at the country level.

Additionally, at the cultural cluster level, ICCs ranged from .004 (income) to .05 (autonomy and job satisfaction) (Table 1). The average cluster size was 2,514, and therefore the design effect ranged from 11 to 127, which suggests a significant design effect (Muthén & Satorra, 1995). This suggests potential nonindependence at the cultural cluster level. Individual data is nested within national data, which is nested within cultural clusters, and therefore the cultural cluster is a third level of data. Unfortunately, a third-level model could not be constructed due to questionable estimates resulting from so few clusters (Hox, 2010). As an alternative approach, a multiple-group SEM model was tested comparing a model with fully constrained β coefficients to one with freed pathways. Specifically, a multiple-group SEM model was tested wherein successively less

stringent constraints were placed on β coefficients. The first model constrained all structural coefficients: χ^2 (424, N = 22,624) = 6,637.65, p < 0.0. The second model constrained all structural coefficients, except the path from job satisfaction to organizational commitment: χ^2 (416, N = 22,624) = 6,470.33, p < 0.0, $\chi^2\Delta$ = 167.32. The third model freed one additional constraint—intrinsic motivation to job satisfaction: χ^2 (408, N = 22,624) = 6,181.44, p < 0.0, $\chi^2\Delta$ = 228.20. The fourth model freed the path from basic psychological needs to intrinsic motivation: χ^2 (400, N = 22,624) = 6,242.13, p < 0.0, $\chi^2\Delta$ = 60.69. A fifth model freed the final structural path from economic incentives to intrinsic motivation: χ^2 (392, N = 22,624) = 6,157.96, p < 0.0, $\chi^2\Delta$ = 23.48. Each change in chi-square value between these models is statistically significant (Yuan & Bentler, 2004), which indicates population heterogeneity and therefore supports assessing each SEM separately. Finally, as hypothesized (Hypothesis 2), the results display a significant positive relationship between economic incentives and intrinsic motivation for the Southern Asia and Confucian Asia cluster (Table 5).

To further understand the impact of cultural cluster on this motivational pathway an exploratory analysis was conducted. While

TABLE 3 Zero-order correlations between exogenous and endogenous variables for each cultural cluster

	Incentive	
Region	**ECON**	**BPN**
Job Satisfaction		
World (22,603)	0.32	0.47
Anglo Cultures (4,744)	0.30	0.47
Nordic Europe (3,875)	0.28	0.52
Germanic Europe (1,721)	0.27	0.50
Latin Europe (3,443)	0.32	0.52
Latin America (696)	0.26	0.36
Eastern Europe (3,785)	0.33	0.44
Sub-Saharan Africa (895)	0.32	0.45
Southern Asia (636)	0.36	0.30
Confucian Asia (2,808)	0.33	0.36
Intrinsic Motivation		
World	0.31	0.48
Anglo Cultures	0.27	0.40
Nordic Europe	0.30	0.51
Germanic Europe	0.26	0.52
Latin Europe	0.27	0.50
Latin America	0.30	0.38
Eastern Europe	0.35	0.47
Sub-Saharan Africa	0.48	0.51
Southern Asia	0.49	0.25
Confucian Asia	0.27	0.33
Organizational Commitment		
World	0.29	0.45
Anglo Cultures	0.27	0.46
Nordic Europe	0.31	0.48
Germanic Europe	0.21	0.46
Latin Europe	0.26	0.49
Latin America	0.18	0.31
Eastern Europe	0.34	0.46
Sub-Saharan Africa	0.41	0.50
Southern Asia	0.29	0.41
Confucian Asia	0.26	0.35

Note. Variables are abbreviated as ECON = Economic Incentives, BPN = Basic Psychological Needs. Cultural regions refer to cultural cluster as defined by the Global Leadership and Organizational Effectiveness (GLOBE) studies (sample size in parentheses). All correlations = p < .001.

TABLE 4 Estimated coefficients for the within (individual level) and between (country level) models

	Individual Level		Country Level
Variable (Coefficient)	**Model 1**	**Model 2**	**Model 2**
Econ. Incentives by JSEC (λx)	1.00 (.00)	1.00 (.00)	1.00 (.00)
Econ. Incentives by Income (λx)	1.09*** (.03)	1.11*** (.05)	0.79* (.35)
Basic Psych. Needs by CP (λx)	1.00 (.00)	1.00 (.00)	1.00 (.00)
Basic Psych. Needs by AUT (λx)	1.50*** (.04)	1.47*** (.08)	1.41*** (.29)
Basic Psych. Needs by R1 (λx)	1.47*** (.04)	1.55*** (.10)	0.13 (.16)
Basic Psych. Needs by R2 (λx)	.94*** (.03)	.96*** (.06)	.44*** (.10)
Intrinsic by Mot. INT (λx)	1.00 (.00)	1.00 (.00)	1.00 (.00)
Job Satisfaction by JS (λx)	1.00 (.00)	1.00 (.00)	1.00 (.00)
Org. Commitment by OC1 (λy)	1.00 (.00)	1.00 (.00)	1.00 (.00)
Org. Commitment by OC2 (λy)	1.38*** (.02)	1.27*** (.05)	3.68*** (1.15)
Org. Commitment by OC3 (λy)	1.20*** (.02)	1.13*** (.04)	2.46*** (.77)
Intrinsic Mot. on Econ. Incentives (β)	.07*** (.02)	.06* (02)	0.91 (.78)
Intrinsic Mot. on Basic Psych. Needs (β)	1.93*** (.05)	2.00*** (.10)	0.66 (.48)
Job Satisfaction on Intrinsic Mot. (β)	1.19**** (.02)	1.18*** (.04)	0.66*** (.18)
Org. Commitment on Job Satisfaction (β)	.70*** (.01)	.74*** (.03)	.46** (.17)
Basic Psych. Needs with Econ. Incentives (Φ)	.12*** (.00)	.11*** (.01)	.01 (.01)
AF1 with AF2 (Φ)	.22*** (.00)	.22*** (.01)	.02** (.00)

Note. Individual Level Model 1 = Hypothesized structural equation model (SEM) coefficients at the individual level. Individual Level Model 2 = Hypothesized SEM coefficients at the individual and country level. Country Level Model 2 = Hypothesized SEM coefficients at the individual and country level, with a modified country level model due to non-significant loading (Residual variance of the observed variable Competence on the second level was fixed to zero as it's near zero estimated variance caused convergence problems). JSEC = Job Security, Income = Reported Level of Income, CP = Competence, AUT = Autonomy, R1 = Relatedness with supervisors, R2 = Relatedness with coworkers, INT = Intrinsic Motivation observed variable, OC1 = Desire to stay with organization, OC2 = Pride in organization, OC3 = Willingness to exert effort for organization.

*p < .05; **p < .01; ***p < .001.

TABLE 5 Estimated structural equation coefficients for the hypothesized model for each cultural cluster separately

	Cultural Region								
	Anglo	Nordic Europe	Germanic Europe	Latin Europe	Latin America	Eastern Europe	Sub-Saharan Africa	Southern Asia	Confucian Asia
Variable (Coefficient)	*n* = 4,736	*n* = 3,944	*n* = 1,718	*n* = 3,432	*n* = 696	*n* = 3,783	*n* = 894	*n* = 630	*n* = 2,791
EI by JSEC (λx)	1.00 (.00)	1.00 (.00)	1.00 (.00)	1.00 (.00)	1.00 (.00)	1.00 (.00)	1.00 (.00)	1.00 (.00)	1.00 (.00)
EI by Income (λx)	.30*** (.01)	0.23*** (.02)	1.05*** (.12)	1.41*** (.11)	0.89*** (.16)	1.12*** (0.06)	1.01*** (.07)	0.85*** (.07)	0.98*** (.07)
BPN by CP (λx)	1.00 (.00)	1.00 (.00)	1.00 (.00)	1.00 (.00)	1.00 (.00)	1.00 (.00)	1.00 (.00)	1.00 (.00)	1.00 (.00)
BPN by AUT (λx)	1.44*** (.11)	1.56*** (.10)	1.38*** (.12)	1.67*** (.09)	2.11*** (.48)	1.66*** (.11)	1.88*** (.21)	0.54** (.18)	0.99*** (.12)
BPN by R1 (λx)	2.38*** (.17)	1.77*** (.12)	1.28*** (.11)	1.29*** (.08)	1.41*** (.34)	1.32*** (.08)	1.25*** (.15)	0.92*** (.17)	1.50*** (.14)
BPN by R2 (λx)	1.30*** (.10)	0.98*** (.07)	0.79*** (.08)	0.88*** (.06)	1.26*** (.32)	0.71*** (.06)	0.48*** (.09)	1.03*** (.18)	1.04*** (.11)
IM by INT (λx)	1.00 (.00)	1.00 (.00)	1.00 (.00)	1.00 (.00)	1.00 (.00)	1.00 (.00)	1.00 (.00)	1.00 (.00)	1.00 (.00)
JobSat by JS (λx)	1.00 (.00)	1.00 (.00)	1.00 (.00)	1.00 (.00)	1.00 (.00)	1.00 (.00)	1.00 (.00)	1.00 (.00)	1.00 (.00)
OC by OC1 (λy)	1.00 (.00)	1.00 (.00)	1.00 (.00)	1.00 (.00)	1.00 (.00)	1.00 (.00)	1.00 (.00)	1.00 (.00)	1.00 (.00)
OC by OC2 (λy)	1.14*** (.04)	1.24*** (.05)	1.20*** (.08)	1.34*** (.05)	2.88*** (.58)	1.52*** (.05)	1.47*** (.12)	1.98*** (.24)	1.16*** (.06)
OC by OC3 (λy)	1.03*** (.03)	1.10*** (.04)	1.01*** (.06)	0.95*** (.03)	2.52*** (.54)	1.31*** (.04)	1.39*** (.11)	1.66*** (.20)	1.20*** (.05)
IM on EI (β)	−0.01 (.01)	−0.01 (.01)	.09* (05)	0.09 (.05)	0.17 (.11)	.01 (.05)	−0.07 (.10)	0.27*** (.07)	0.17*** (.04)
IM on BPN (β)	2.40*** (.17)	2.26*** (.13)	1.65*** (.14)	1.70*** (.10)	2.63*** (.56)	2.01*** (.14)	2.18*** (.30)	1.01*** (.24)	2.06*** (.19)
JobSat on IM (β)	1.40*** (.04)	1.16*** (.03)	1.11*** (.05)	1.13*** (.04)	0.92*** (.09)	1.04*** (.04)	0.82*** (.06)	1.06*** (.11)	1.18*** (.05)
OC on JobSat (β)	.74*** (.03)	0.78*** (.03)	0.75*** (.05)	0.81*** (.03)	0.35*** (.08)	0.76*** (.01)	0.73*** (.07)	0.45*** (.07)	0.70*** (.04)
BPN with EI (Φ)	.09*** (.01)	0.10*** (.01)	.09*** (.02)	0.11*** (.01)	0.07*** (.02)	0.15*** (.01)	0.27*** (.03)	0.18*** (.04)	.08*** (.01)
R1 with R2 (Φ)	.23*** (.01)	0.18*** (.01)	.15*** (.01)	0.19*** (.01)	0.37*** (.03)	0.26*** (.01)	0.27*** (.03)	0.33*** (.04)	0.20*** (.01)
Fit Indices									
Chi-square	952.17 (41)	1,224.40 (41)	323.68 (40)	574.05 (40)	109.86 (40)	545.66 (40)	245.68 (40)	155.71 (40)	195.67 (40)
RMSEA	0.07	0.09	0.06	0.06	0.05	0.06	0.08	0.07	0.04
CFI	0.92	0.88	0.92	0.94	0.94	0.95	0.92	0.93	0.97
NNFI/TLI	0.9	0.84	0.9	0.91	0.92	0.93	0.89	0.9	0.96
SRMR	0.05	0.07	0.04	0.04	0.04	0.04	0.05	0.06	0.03

Note. Model degrees of freedom ranges from 40 to 41 due to Job Security residual variance being restricted to zero on the second level as it's near zero estimated variance caused convergence problems when free. EI = Economic Incentives, JSEC = Job Security, Income = Reported Level of Income, BPN = Basic Psychological Needs, CP = Competence, AUT = Autonomy, R1 = Relatedness with supervisors, R2 = Relatedness with coworkers, IM = Intrinsic Motivation, INT = Intrinsic motivation observed variable, JobSat = Job Satisfaction, JS = Job satisfaction observed variable, OC = Organizational Commitment, OC1 = Desire to stay with organization, OC2 = Pride in organization, OC3 = Willingness to exert effort for organization.

*$p < .05$; **$p < .01$; ***$p < .001$.

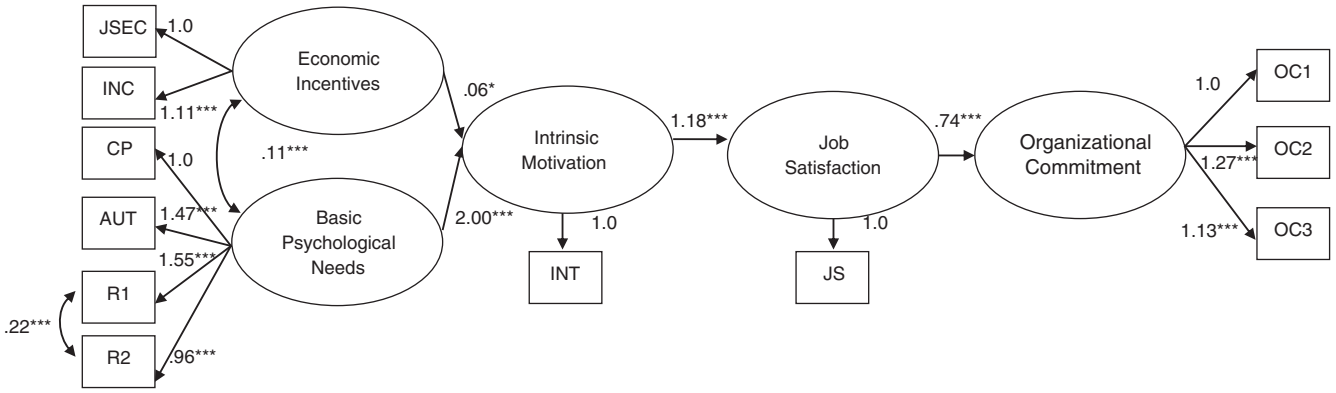

FIGURE 2 Structural equation model at the first level (i.e., individual within subjects). *Note.* JSEC = Job Security, INC = Income, CP = Competence, AUT = Autonomy, R1 = Relatedness with supervisors, R2 = Relatedness with coworkers, INT = Intrinsic motivation indicator, JS = Job satisfaction indicator, OC1 = Desire to stay with organization, OC2 = Pride in organization, OC3 = Willingness to exert effort for organization, *p < .05; **p < .01; ***p < .001

an a priori decision was not made to analyze the GLOBE clusters in the context of a multilevel SEM, it does, in fact, appear that sizable ICCs and cluster sizes may indicate a design effect (Table 1). In this analysis, the endogenous latent variables at the second (country) level were regressed on dummy-coded GLOBE clusters in an attempt to control for nonindependence of regions. Interestingly, each coefficient in the pathway from basic psychological needs to job satisfaction, mediated by intrinsic motivation, was significant (Figure 4). In conjunction with the nonsignificant pathways shown at the country level without GLOBE cluster covariates, this provides additional evidence for Hypothesis 2 on the importance of cultural region. The AIC index (649,429.019) for this model was smaller than the model without covariates; however, the results should be interpreted only as preliminary evidence. While full results were computed, the model reached a "saddle point," and therefore some of the estimates (e.g., standards errors) may be overestimated (Asparouhov & Muthén, 2012). It is very likely that this result is due to having many more parameter estimates than clusters (Hox, 2010). Again, these results should be interpreted with caution. However, it is a question that will benefit from further advancements in statistical modeling.

In summary, results offer evidence for the universality of the motivational potential of basic psychological needs, as defined by SDT, at work. Multilevel modeling suggests that it may not be necessary to account for variation in the pathway from basic psychological needs to job satisfaction as mediated by intrinsic motivation at the national level. The structural equation coefficients were not significant at level 2 of the individual and cross-national multilevel SEM. In other words, there was no effect of nation on the impact of basic psychological needs. Second, due to population heterogeneity, the individual-level SEM was assessed separately for each GLOBE cluster. Results show a positive effect of external incentives on intrinsic motivation for East Asian cultures.

7 | DISCUSSION

The current study offers evidence that global managers should be more concerned with cultural rather national borders when designing incentive systems. Therefore, it is regional cultural variation instead of national borders that play a more important role in effecting the motivational antecedents of job satisfaction and commitment. As

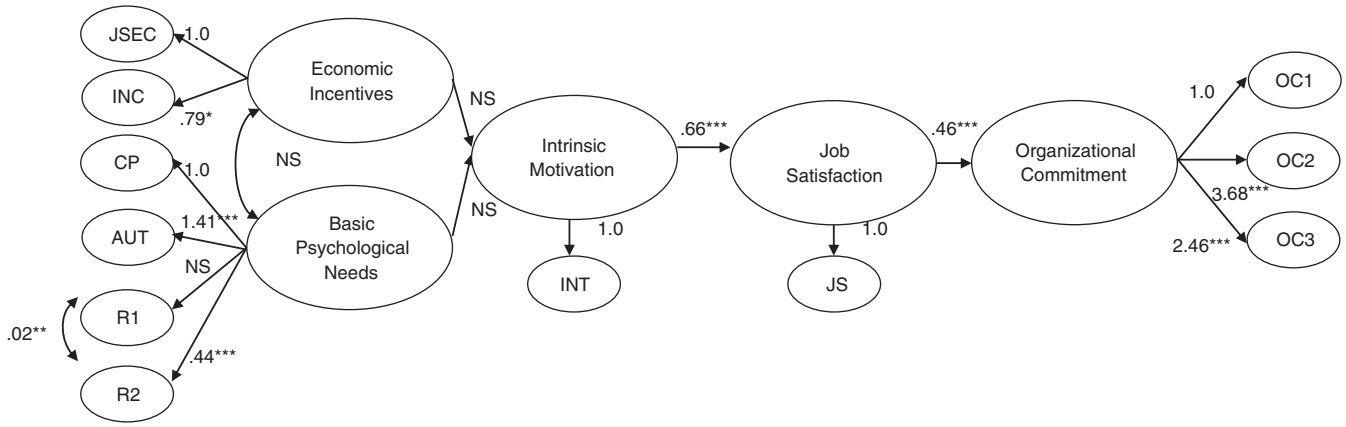

FIGURE 3 Structural equation model at the second level (i.e., between countries). *Note.* JSEC = Job Security, INC = Income, CP = Competence, AUT = Autonomy, R1 = Relatedness with supervisors, R2 = Relatedness with coworkers, INT = Intrinsic motivation indicator, JS = Job satisfaction indicator, OC1 = Desire to stay with organization, OC2 = Pride in organization, OC3 = Willingness to exert effort for organization, *p < .05; **p < .01; ***p < .001

demand for committed labor continues, global managers will need to continue to be cognizant of the cross-border and cultural-cultural determinants of motivation (Dobbs et al., 2012; Monnot, Barnowe, & Youtz, 2014).

7.1 | Managerial implications

The results of this study have implications for retaining a satisfied and committed international workforce, which is likely to become increasingly important as the global war for talent continues its progression. Examination of results of SEM coefficients at the individual and country level confirms the generalizability of basic psychological needs (Table 4). However, an examination of results at the level of cultural cluster offers insight into important cross-cultural differences regarding antecedent incentives of intrinsic motivation (Table 5).

First, the current study contributes to our understanding of the applicability of SDT in the workplace (Gagné & Deci, 2005). SDT is an organismic theory of motivation that posits three basic psychological needs as central components of intrinsic motivation and subsequent well-being (Deci & Ryan, 2000). Basic psychological needs are significantly positively related to intrinsic work motivation across all nations, with β ranging from 1.01 (SE = .24, $p < .001$) to 2.40 (SE = .17, $p < .001$), in the current study. Likewise, the relationship between intrinsic motivation and job satisfaction, and, the relationship between job satisfaction and organization commitment is significantly positive for each cultural cluster (Table 5). While the current results suggest that population heterogeneity is prevalent, each of the model relationships is positive. This supports the universality of a positive motivational potential of basic psychological needs across both national and cultural boundaries.

However, results suggest that cultural cluster acts as a contingency that may explain previous contradictory findings that extrinsic rewards have a zero (Cameron & Pierce, 1994; Eisenberger & Cameron, 1996) versus a positive effect (Eisenberger et al., 1999) on intrinsic motivation. The positive relationship between economic incentives and intrinsic motivation is significant for East Asian clusters. While this relationship is not significant for six of the nine cultural clusters (i.e., Anglo, Latin Europe, Nordic, Eastern Europe, Latin Europe, and sub-Saharan Africa) the relationship is significant for Southern Asia and Confucian Asia, with β ranging from .09 (SE = .05, $p < .05$) to .27 (SE = .07, $p < .001$). Therefore, conventional theory about reward systems (Porter & Lawler, 1968) may apply in these three cultural clusters. Specifically, systems that utilize both intrinsic and extrinsic rewards may have an additive intrinsically motivating effect and lead to eventual greater satisfaction and performance within these cultural clusters. Alternatively, the SDT cognitive evaluation perspective may apply to the other six clusters. Specifically, within these regions extrinsic and intrinsic motivators may not be additive in effect and therefore employees may benefit from reward systems that do not detract from intrinsic motivation (Deci et al., 1999). Effect of cultural region on the effectiveness of incentive systems should have important implications for global managers (Javidan & Dastmalchian, 2009).

7.2 | Limitations and future research

The fact that international employee data sets are typically composed of more than two levels and that the higher level is typically small (e.g., nation, trading bloc, cultural region, cultural cluster) is problematic. While several methods were used to work around the inability to construct a three-level model, they are not ideal. Standard statistical analyses rely heavily on nonindependence, and therefore not taking clusters into account (e.g., disaggregating higher-order variables) may bias results. Likewise, aggregating individual results disregards individual-level variation, resulting in a loss of information and power (Hox, 2010). Unfortunately, at this point there is not an ideal way to obviate a multilevel model for clustered data. Therefore, the three-level model is very likely to lack both power and accurate standard errors (see Kreft, 1996, for more).

The use of an archival dataset may have also limited the informational power of the current model. For example, single-item latent indicators were utilized the structural model. While there have been numerous studies (e.g., Nichols & Webster, 2013; Postmes, Haslam, & Jans, 2013; Robins, Hendin, & Trzesniewski, 2001) demonstrating the

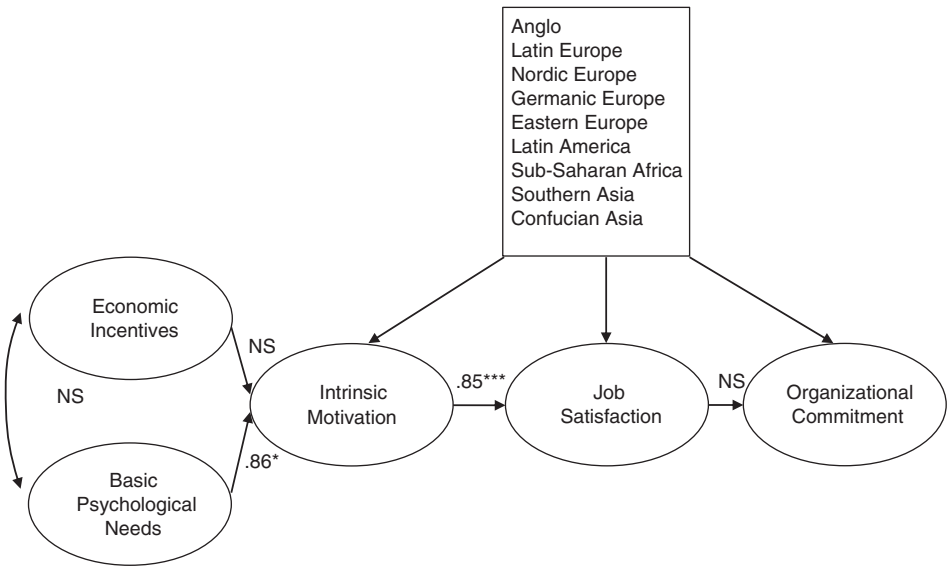

FIGURE 4 Structural equation model at the second level (i.e., between countries) with GLOBE clusters dummy coded as covariates. *Note.* Dummy coded cultural clusters were entered as observed variables preceding exogenous variables. Results should be interpreted with caution due to "saddle point" being reached as a result of a small ratio of clusters to coefficient estimates. *$p < .05$; **$p < .01$; ***$p < .001$

psychometric soundness of single items to measure psychological constructs in place of previous multi-item scales, the issue remains contentious. Job satisfaction, for instance, is typically measured either as a single global or multiple specific (e.g., pay, coworkers) indicators. Previous arguments that a global indicator is more content valid measure of job satisfaction (Scarpello & Campbell, 1983) have been challenged due to loss of predictive validity (e.g., Highhouse & Becker, 1993). Subsequent meta-analytic results suggest that the attenuation of validity may be marginal, and therefore a global measure is acceptable (Wanous et al., 1997). This is true from a statistical standpoint, but from a practical standpoint there is likely still a loss of information. For example, a general indicator of satisfaction does not offer insight into the specific content of the job that is satisfactory. It would be more informative to understand which aspects of satisfaction that intrinsic motivation is an antecedent of. The argument can be made for other indicators. Therefore, for example, job security and income should be considered two indicators of economic incentive rather than a holistic construct. As with any study using self-report data, the reader should interpret each construct in the current study as being represented by *a* measure and not *the* measure. Likewise, constructing a hybrid structural equation model—one with both latent and observed variables—treats single-item indicators as perfectly reliable, which may inflate structural coefficients (Kline, 2016).

Subsequent research would offer further contributions by examining a wider range of indicators. For example, SDT is an organismic integration theory that delineates various types of extrinsic motivation based on the extent to which it has been internalized. Therefore, it would be helpful to measure each type of motivation. It is likely that economic incentives are more strongly related to the other types of motivation outlined by SDT in addition to intrinsic (i.e., external, introjected, identified, integrated). Identified and integrated motivations, for example, have been shown to be related to important job outcomes as well (Gagné & Deci, 2005). It would be helpful to understand the spectrum of motivation from external to internal as they relate to basic psychological needs as well as economic incentives.

7.3 | Conclusion

Organizations operate in a competitive global economic environment where there exists a struggle to retain a motivated, satisfied, and committed employees. This requires an understanding and application of a widely applicable model of human motivation. SDT is an overarching theoretical framework that encompasses evolved basic psychological needs that result in intrinsic motivation when satiated. Intrinsic motivation, by way of job satisfaction, leads to increased levels of organizational commitment. Results of the current study imply that the effect of basic psychological need satiation on intrinsic motivation and subsequent job satisfaction does not vary across national boundary, but does in fact vary across cultural cluster. This has important implications for international organizations, as combined reward systems (Porter & Lawler, 1968) may be more effective in certain regions of the world, while intrinsically based reward systems may be more applicable to others (Gagné & Deci, 2005). Therefore, international business leaders and managers would do well to consider cultural cluster boundaries as more salient than national borders when considering a motivational model that will facilitate job satisfaction and commitment.

ORCID

Matthew J. Monnot http://orcid.org/0000-0002-9489-1777

REFERENCES

Asparouhov, T., & Muthén, B. O. (2012). Saddle points. Retrieved from http://www.statmodel.com/download/SaddlePoints2.pdf

Baard, P. P., Deci, E. L., & Ryan, R. M. (2004). Intrinsic need satisfaction: A motivational basis of performance and well-being in two work settings. *Journal of Applied Social Psychology*, *88*, 203–217.

Cameron, J., & Pierce, W. D. (1994). Reinforcement, reward, and intrinsic motivation: A meta-analysis. *Review of Educational Research*, *64*, 363–423.

Cattell, R. (1950). The principal culture patterns discoverable in the syntax dimensions of existing nations. *Journal of Social Psychology*, *32*, 215–253.

Chen, C. C. (1995). New trends in reward allocation preferences: A Sino-U.S. comparison. *Academy of Management Journal*, *38*, 408–428.

Chen, B., Vansteenkiste, M., Beyers, W., Boone, L., Deci, E. L., Van der Kaap-Deeder, J. … Verstuyf, J. (2015). Basic psychological need satisfaction, need frustration, and need strength across four cultures. *Motivation and Emotion*, *39*, 216–236.

Chirkov, V. I., & Ryan, R. M. (2001). Parent and teacher autonomy-support in Russian and U.S. adolescents: Common effects on well-being and academic motivation. *Journal of Cross Cultural Psychology*, *32*, 618–635.

Chirkov, V. I., Ryan, R. M., Kim, Y., & Kaplan, U. (2003). Differentiating autonomy from individualism and independence: A self-determination theory perspective on internalization of cultural orientations and well-being. *Journal of Personality and Social Psychology*, *84*(1), 97–110.

Chirkov, V. I., Ryan, R. M., & Willness, C. (2005). Cultural context and psychological needs in Canada and Brazil: Testing a self-determination to the internalization of cultural practices, identity, and well-being. *Journal of Cross-Cultural Psychology*, *36*, 423–443.

Danner, F. W., & Lonky, E. (1981). A cognitive-developmental approach to the effects of rewards on intrinsic motivation. *Child Development*, *52*, 1043–1052.

Deci, E. L. (1971). Effects of externally mediated rewards on intrinsic motivation. *Journal of Personality and Social Psychology*, *18*, 105–115.

Deci, E. L., Koestner, R., & Ryan, R. M. (1999). A meta-analytic review of experiments examining the effects of extrinsic rewards on intrinsic motivation. *Psychological Bulletin*, *125*, 627–668.

Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and self-determination of behavior. *Psychological Inquiry*, *11*(4), 227–268.

Deci, E. L., & Ryan, R. M. (2012). Motivation, personality, and development within embedded social contexts: An overview of self-determination theory. In R. M. Ryan (Ed.), *Oxford handbook of human motivation* (pp. 85–107). Oxford, England: Oxford University Press.

Deci, E. L., Ryan, R. M., Gagné, M., Leone, D. R., Usunov, J., & Kornazheva, B. P. (2001). Need satisfaction, motivation, and well-being in the work organizations of a former Eastern bloc country. *Personality and Social Psychology Bulletin*, *27*, 930–942.

Dobbs, R., Lund, S., & Madgavkar, A. (2012, November). Talent tensions ahead: A CEO briefing. *McKinsey Quarterly*, *2012*, 1–11.

Earley, P. C., & Gibson, C. B. (1998). Taking stock in our progress on individualism-collectivism: 100 years of solidarity and community. *Journal of Management*, *24*, 265–304.

Eisenberger, R., & Cameron, J. (1996). Detrimental effects of reward: Reality or myth? *American Psychologist*, *51*, 1153–1166.

Eisenberger, R., Pierce, W. D., & Cameron, J. (1999). Effects of rewards on intrinsic motivation—negative, neutral, and positive: Comment on Deci, Koestner, & Ryan (1999). *Psychological Bulletin*, *125*, 677–691.

Fischer, R., & Mansell, A. (2009). Commitment across cultures: A meta-analytical approach. *Journal of Business Studies*, *40*, 1339–1358.

Frodi, A., Bridges, L., & Grolnick, W. S. (1985). Correlates of mastery-related behavior: A short term longitudinal study of infants in their second year. *Child Development*, *56*, 1291–1298.

Ferguson, Y. L., Kasser, T., & Jahng, S. (2011). Differences in life satisfaction and school satisfaction among adolescents from three nations: The role of perceived autonomy support. *Journal of Research on Adolescence*, *21*, 649–661.

Furnham, A., Kirkcaldy, B., & Lynn, R. (1994). National attitudes to competitiveness, money and work among young people: First, second, and third world differences. *Human Relations*, *47*, 119–132.

Gagné, M., & Deci, E. L. (2005). Self-determination theory and work motivation. *Journal of Organizational Behavior*, *26*, 331–362.

Gelfand, M. J., Bhawuk, D. P. S., Nishii, L. H., Bechtold, D. J. (2004). Individualism and collectivism. In R. J. House, P. J. Hanges, M. Javidan, P. W. Dorfman, & V. Gupta (Eds.), *Culture, leadership, and organizations: The GLOBE study of 62 societies* (pp. 437–512). Thousand Oaks, CA: Sage.

Gupta, V., & Hanges, P. J. (2004). Regional and climate clustering of societal cultures. In R. J. House, P. J. Hanges, M. Javidan, P. W., Dorfman, & V. Gupta (Eds.), *Culture, leadership, and organizations: The GLOBE study of 62 societies* (pp. 178–233). Thousand Oaks, CA: Sage.

Gupta, V., Hanges, P. J., & Dorfman, P. (2004). Cultural clusters: Methodology and findings. *Journal of World Business*, *37*(1), 11–15.

Haire, M., Ghiselli, E., & Porter, L. (1966). *Managerial thinking: An international study*. New York, NY: Wiley.

Hahn, J., & Oishi, S. (2006). Psychological needs and emotional well-being in older and younger Koreans and Americans. *Personality and Individual Differences*, *40*, 689–698.

Hanges, P. J., & Dickson, M. W. (2004). The development and validation of the GLOBE culture and leadership scales. In R. J. House, P. J. Hanges, M. Javidan, P. W. Dorfman, & V. Gupta (Eds.), *Culture, leadership, and organizations: The GLOBE study of 62 societies* (pp. 122–151). Thousand Oaks, CA: Sage.

Highhouse, S., & Becker, A. S. (1993). Facet measures of global job satisfaction. *Journal of Business and Psychology*, *8*(1), 117–127.

Hofstede, G. (1976). Nationality and espoused values of managers. *Journal of Applied Psychology*, *61*, 148–155.

Hofstede, G. (1980). *Culture's consequences: International differences in work-related behaviors*. Beverly Hills, CA: Sage.

House, R. J., Hanges, P. J., Javidan, M., Dorfman, P. W., & Gupta, V. (Eds.). (2004). *Culture, leadership, and organizations: The GLOBE study of 62 societies*. Thousand Oaks, CA: Sage.

Hox, J. J. (2010). *Multilevel analysis: Techniques and applications*. New York, NY: Routledge.

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indices in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, *61*, 1–55.

Hull, C. L. (1943). *Principles of behavior: An introduction to behavior theory*. New York, NY: Appleton-Century-Crofts.

ISSP Research Group. (2013): *International Social Survey Programme: Work Orientation III–ISSP 2005*. GESIS Data Archive, Cologne. ZA 4350 Data file Version 2.0.0.

Iaffaldano, M. T., & Muchinsky, P. M. (1985). Job satisfaction and job performance: A meta-analysis. *Psychological Bulletin*, *97*, 251.

Javidan, M., & Dastmalchian, A. (2009). Managerial implications of the GLOBE project: A study of 62 societies. *Asia Pacific Journal of Human Resources*, *47*(1), 41–58.

Judge, T. A., & Bono, J. E. (2001). Relationship of core self-evaluations traits—self-esteem, generalized self-efficacy, locus of control, and emotional stability—with job satisfaction and job performance: A meta-analysis. *Journal of Applied Psychology*, *86*(1), 80.

Kasser, T., & Ryan, R. M. (1993). A dark side of the American dream: Correlates of financial success as a central life aspiration. *Personality and Social Psychology Bulletin*, *65*, 410–422.

Kasser, T., & Ryan, R. M. (1996). Further examining the American dream: Differential correlates of intrinsic and extrinsic goals. *Personality and Social Psychology Bulletin*, *22*, 80–87.

Kasser, T., & Ryan, R. M. (1999). The relation of psychological needs for autonomy and relatedness to vitality, well-being, and mortality in a nursing home. *Journal of Applied Social Psychology*, *29*, 935–954.

Kline, R. B. (2016). *Principles and practice of structural equation modeling* (4th ed.). New York, NY: Guilford Press.

KPMG International. (2012). Rethinking human resources in a changing world. Retrieved from http://www.kpmg.com/LU/en/services/Advisory/management-consulting/Documents/hr-transformations-survey-full-report.pdf

Kreft, I. G. G. (1996). Are multilevel techniques necessary? An overview, including simulation studies. Unpublished Report, California State University, Los Angeles. Retrieved from http://www.eric.ed.gov

Lanvin, B., & Evans, P. (Eds.). (2013). *The global talent competitiveness index 2013*. Singapore: INSEAD.

Lynch, M. F., La Guardia, J. G., & Ryan, R. M. (2009). On being yourself in different cultures: Ideal and actual self-concept, autonomy support, and well-being in China, Russia, and the United States. *Journal of Positive Psychology*, *4*, 290–304.

Lynch, M. F., Plant, R. W., & Ryan, R. M. (2005). Psychological needs and threat to safety: Implications for staff and patients in a psychiatric hospital for youth. *Professional Psychology*, *36*, 415–425.

Markus, H. R., & Kitayama, S. (1991). Culture and the self: Implications for cognition, emotion, and motivation. *Psychological Review*, *98*, 224–253.

Mathieu, J. E., Aguinis, H., Culpeper, S. A., & Chen, G. (2012). Understanding and estimating the power to detect interaction effects in multilevel modeling. *Journal of Applied Psychology*, *97*, 951–966.

Matsumoto, D. (1999). Culture and self: An empirical assessment of Markus and Kitayama's theory of independent and interdependent self-construals. *Asian Journal of Social Psychology*, *2*, 289–310.

Matsumoto, D., Weissman, M. D., Preston, K., Brown, B. R., & Kupperbusch, C. (1997). Context-specific measurement of individualism-collectivism on individual level: The individualism–collectivism interpersonal assessment Inventory. *Journal of Cross-Cultural Psychology*, *28*, 734–767.

Meyer, J. P., Stanley, D. J., Herscovitch, L., & Topolnytsky, L. (2002). Affective, continuance, and normative commitment to organization: A meta-analysis of antecedents, correlates, and consequences. *Journal of Vocational Behavior*, *61*, 20-52.

Meyer, J. P., Stanley, D. J., Jackson, T. A., McInnis, K. J., Maltin, E. R., & Sheppard, L. (2012). Affective, normative, and continuance commitment levels across cultures: A meta-analysis. *Journal of Vocational Behavior*, *80*, 225–245.

Monnot, M. J. (2017). Marginal utility and economic development: Intrinsic versus extrinsic aspirations and subjective well-being among Chinese employees. *Social Indicators Research*, *132*(1), 155–185.

Monnot, M. J., Barnowe, T., & Youtz, G. (2014). Preparing global managers and consultants: A justification and framework for international exchange programs in higher education. In R. L. Griffith, L. Foster Thompson, B. K. Armon, R. L. Griffith, L. Foster Thompson, & B. K. Armon (Eds.), *Internationalizing the curriculum in organizational psychology* (pp. 127–148). New York, NY: Springer Science + Business Media.

Morrison, M., Tay, L., & Diener, E. (2011). Subjective well-being and national satisfaction: Findings from a worldwide survey. *Psychological Science*, *22*, 166–171.

Mowday, R. T., Porter, L. W., & Steers, R. M. (1982). *Employee-organization linkages: The psychology of commitment, absenteeism, and turnover*. New York: Academic Press.

Mowday, R. T., Steers, R. M., & Porter, L. W. (1979). The measurement of organizational commitment. *Journal of Vocational Behavior*, *14*, 224–247.

Muthén, B. O., & Satorra, A. (1995). Complex sample data in structural equation modeling. *Sociological Methodology*, *25*, 267–316.

Nichols, A. L., & Webster, G. D. (2013). The single-item need to belong scale. *Personality and Individual Differences*, *55*, 189–192.

Niemiec, C. P., Ryan, R. M., & Deci, E. L. (2009). The path taken: Consequences of attaining intrinsic and extrinsic aspirations in post-college life. *Journal of Research in Personality*, *43*, 291–306.

Nisbett, R. E., Peng, K., Choi, I., & Norenzayan, A. (2001). Culture and systems of thought: Holistic versus analytic cognition. *Psychological Review*, *108*, 291–310.

Peugh, J. L. (2010). A practical guide to multilevel modeling. *Journal of School Psychology*, *48*, 85–112.

Porter, L. W., & Lawler, E. E. III. (1968). *Managerial attitudes and performance*. Homewood, IL: Irwin-Dorsey.

Porter, L. W., Steers, R. M., Mowday, R. T., & Boulian, P. V. (1974). Organizational commitment, job satisfaction, and turnover among psychiatric technicians. *Journal of Applied Psychology*, *59*, 603–609.

Postmes, T., Haslam, S. A., & Jans, L. (2013). A single-item measure of social identification: Reliability, validity, and utility. *British Journal of Social Psychology*, *52*, 597–617.

Reis, H. T., Sheldon, K. M., Gable, S. L., Roscoe, J., & Ryan, R. M. (2000). Daily well-being: The role of autonomy, competence, and relatedness. *Personality and Social Psychology Bulletin*, *26*, 419–435.

Robins, R. W., Hendin, H. M., & Trzesniewski, K. H. (2001). Measuring global self-esteem: Construct validation of a single-item measure and the Rosenberg Self-Esteem Scale. *Personality and Social Psychology Bulletin*, *27*, 151–161.

Ronen, S., & Kraut, A. (1977). Similarities among countries based on employee work values and attitudes. *Journal of World Business*, *12*, 89-96.

Rosen, C. C., Ferris, D. L., Brown, D. J., Chen, Y., & Yan, M. (2014). Perceptions of organizational politics: A need satisfaction paradigm. *Organization Science*, *25*, 1026–1055.

Ryan, R. M. (1982). Control and information in the intrapersonal sphere: An extension of cognitive evaluation theory. *Journal of Personality and Social Psychology*, *43*, 450–461.

Ryan, R. M., Chirkov, V. I., Little, T. D., Sheldon, K. M., Timoshina, E., & Deci, E. L. (1999). The American dream in Russia: Extrinsic aspirations and well-being in two cultures. *Personality and Social Psychology Bulletin*, *25*, 1509–1524.

Ryan, R. M., & Deci, E. L. (2006). Self-regulation and the problem of human autonomy: Does psychology need choice, self-determination, and will? *Journal of Personality*, *74*, 1557–1586.

Ryan, R. M., Kuhl, J., & Deci, E. L. (1997). Nature and autonomy: An organizational view on the social and neurobiological aspects of self-regulation in behavior and development. *Development and Psychopathology*, *9*, 701–728.

Ryan, R. M., & La Guardia, J. G. (2000). What is being optimized?: Self-determination theory and basic psychological needs. In S. H. Qualls, N. Abeles, S. H. Qualls, N. Abeles (Eds.), *Psychology and the aging revolution: How we adapt to longer life* (pp. 145-172). Washington, DC, US: American Psychological Association.

Ryan, R. M., Stiller, J., & Lynch, J. H. (1994). Representations of relationships to teachers, parents, and friends as predictors of academic motivation and self-esteem. *Journal of Early Adolescence*, *14*, 226–249.

Sackett, P. R., & Larson, J. R. (1990). Research strategies and tactics in industrial and organizational psychology. In M. D. Dunnette & L. M. Hough (Eds.), *Handbook of industrial and organizational psychology* (2nd ed., Vol. *1*, pp. 419–489). Palo Alto, CA: Consulting Psychologists Press.

Sass, D. A., & Smith, P. L. (2006). The effects of parceling unidimensional scales on structural parameter estimates in structural equation modeling. *Structural Equation Modeling: A Multidisciplinary Journal*, *13*, 566–586.

Scarpello, V., & Campbell, J. P. (1983). Job satisfaction: Are all the parts there? *Personnel Psychology*, *36*, 577–600.

Schmuck, P., Kasser, T., & Ryan, R. M. (2000). The relationship of well-being to intrinsic and extrinsic goals in Germany and the U.S. *Social Indicators Research*, *50*, 225–241.

Schwartz, S. H., & Bilsky, W. (1990). Toward a theory of universal structure and content of values: Extensions and cross-cultural replications. *Journal of Personality and Social Psychology*, *58*, 878–891.

Sheldon, K. M., & Kasser, T. (1995). Coherence and congruence: Two aspects of personality integration. *Journal of Personality and Social Psychology*, *68*, 531-543.

Sheldon, K. M., Ryan, R. M., & Reis, H. T. (1996). What makes for a good day? Competence and autonomy in the day and in the person. *Personality and Social Psychology Bulletin*, *22*, 1270–1279.

Smith, P. B., Dugan, S., & Trompenaars, F. (1996). National culture and the values of organizational employees a dimensional analysis across 43 nations. *Journal of Cross-Cultural Psychology*, *27*, 231–264.

Tay, L., & Diener, E. (2011). Needs and subjective well-being around the world. *Journal of Personality and Social Psychology*, *101*, 354–365.

Takano, Y., & Sogon, S. (2008). Are Japanese more collectivistic than Americans? Examining conformity in in-groups and the reference-group effect. *Journal of Cross-Cultural Psychology*, *39*, 237–250.

Triandis, H. C. (1995). *Individualism & collectivism*. Boulder, CO: Westview.

Triandis, H. C., & Bhawuk, D. P. (1997). Culture theory and the meaning of relatedness. In C. Earley & M. Erez (Eds.), *New perspectives on international industrial/organizational psychology* (pp. 13–52). San Francisco, CA: New Lexington Press.

Van den Broeck, Al., Ferris, D. L., Chang, C.-H., Rosen, C. C. (2016). A review of self-determination theory's basic psychological needs at work. *Journal of Management*, *42*, 1195–1229.

Van den Broeck, A., Vansteenkiste, M., De Witte, H., & Lens, W. (2008). Explaining the relationships between job characteristics, burnout, and engagement: The role of basic psychological need satisfaction. *Work & Stress*, *22*, 277–294.

Vansteenkiste, M., Neyrinck, B., Niemiec, C. P., Soenens, B., De Witte, H., & Van den Broeck, A. (2007). On the relations among work value orientations, psychological need satisfaction and job outcomes: A self-determination theory approach. *Journal of Occupational and Organizational Psychology*, *80*(25), 251–277.

Vansteenkiste, M., Simons, J., Lens, W., Sheldon, K. M., & Deci, E. L. (2004). Motivating learning, performance, and persistence: The synergistic effects of intrinsic goal contents and autonomy supportive contexts. *Journal of Personality and Social Psychology*, *87*, 246-260.

Wanous, J. P., Reichers, A. E., & Hudy, M. J. (1997). Overall job satisfaction: How good are single-item measures? *Journal of Applied Psychology*, *82*(2), 247–252.

World Trade Organization (WTO). (2013). International Trade Statistics. Retrieved from http://www.wto.org/english/res_e/statis_e/its2013_e/its2013_e.pdf

Yu, A. B., & Yang, K. S. (1994). The nature of achievement motivation in collectivist societies. In U. Kim, H. C. Triandis, C. Kagitcibasi, S. C. Choi, & G. Yoon (Eds.), *Individualism and collectivism: Theory, method, and applications* (pp. 239–250). Thousand Oaks, CA: Sage.

Yuan, K.-H., & Bentler, P. M. (2004). On chi-square difference and *z*-tests in mean and covariance structure analysis when the base model is misspecified. *Educational and Psychological Measurement*, *64*, 737–757.

AUTHOR'S BIOGRAPHY

Dr. **Matthew J. Monnot** is an experienced researcher and consultant in the field of organizational behavior. His current research interests are focused on the experience of meaning and well-being at work, how individual employees create organizational change, as well as international organizational behavior. Dr. Monnot received his PhD from Central Michigan University.

How to cite this article: Monnot MJ. The effect of incentives on intrinsic motivation and employee attitudes: A multilevel study across nations and cultural clusters. *Thunderbird Int. Bus. Rev.* 2018;60:675–689. https://doi.org/10.1002/tie.21949