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The Relation of Economic Status to Subjective Well-Being in Developing Countries: A Meta-Analysis

Ryan T. Howell
San Francisco State University

Colleen J. Howell
University of California, Riverside

The current research synthesis integrates the findings of 111 independent samples from 54 economically developing countries that examined the relation between economic status and subjective well-being (SWB). The average economic status–SWB effect size was strongest among low-income developing economies ($r = .28$) and for samples that were least educated ($r = .36$). The relation was weakest among high-income developing economies ($r = .10$) and for highly educated samples ($r = .13$). Controlling for numerous covariates, the partial r effect size remained significant for the least-educated samples ($pr = .18$). Moderator analyses showed the economic status–SWB relation to be strongest when (a) economic status was defined as wealth (a stock variable), instead of as income (a flow variable), and (b) SWB was measured as life satisfaction (a cognitive assessment), instead of as happiness (an emotional assessment). Findings were replicated with a meta-analysis of the World Values Survey data. Discussion centers on the plausibility of need theory, alternative explanations of results, interpretation of moderators, and directions for future research.

Keywords: poverty, income, subjective well-being, happiness, need theory

> A feast is made for laughter, and wine makes life merry, but money is the answer for everything.
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> —Ecclesiastes 10:19 (c. 300 BCE)

For thousands of years, people have believed that money could buy happiness, and over the past 5 decades scholars have investigated the extent to which this might be true. Survey research consistently has demonstrated that the rich are typically happier than the poor, and individuals living in wealthier economies are, on average, happier than those living in poorer economies (Cantril, 1965; Diener, Sandvik, Seidlitz, & Diener, 1993; Veenhoven, 1991, 1994; Zavisca & Hout, 2005). This should not be surprising given that higher economic status is associated with several desirable outcomes, such as increased life expectancy, reduced malnutrition, and lower infant mortality (Gillis, Perkins, Roemer, & Snodgrass, 1996). Poverty, on the other hand, correlates with "poor health, poor mobility, poor education, and poor access to services" (Klasen, 1997, p. 89). Further, economic utility theory suggests that as people gain income and wealth, they gain purchasing power, which expands their bundle of affordable goods, leading to increased consumption and, ultimately, to improved utility or well-being.

Based on the common finding that financial resources associate positively with well-being and/or welfare, one might expect a strong positive correlation between income or wealth and life satisfaction or happiness in life. Indeed, cross-national analyses of countries' average happiness and gross domestic product per capita have shown the correlation to be quite strong ($r = .60$ to $.84$; Diener, Diener, & Diener, 1995; Schyns, 1998; Veenhoven, 1991). Yet, in cross-sectional analyses, correlations between wealth or income and happiness tend to vary according to the economic status of the country or sample (e.g., Diener & Biswas-Diener, 2002; Diener & Oishi, 2000; Diener et al., 1993; Diener, Suh, Lucas, & Smith, 1999; Schyns, 1998, 2002; Veenhoven, 1991, 1996). Namely, much attention has been paid to the rather weak economic status–subjective well-being (SWB) relations that tend to be found within wealthy developed nations, such as the United States, Australia, and countries within Western Europe ($r = .06$ to $.15$, $r^2 = .004$ to $.022$; see Ahuvia & Friedman, 1998; Cummins, 2000; Diener & Oishi, 2000; Diener et al., 1993; Easterlin, 1995, 2001; Headey, Muffels, & Wooden, 2004; Rojas, 2004). In addition, while there is general agreement among researchers that economic status–SWB relations are stronger within poorer and less developed country samples (e.g., Arthad-Day & Near, 2005; Easterlin, 1995; Veenhoven, 1991), no study has summarized the relationship of economic status to SWB in developing countries, and little is known of the sociodemographic or measurement-related variables that may influence its strength.

These observations raise the following question, which we have undertaken to answer through this meta-analysis: What is the average relation between objective economic status (i.e., absolute income, wealth, socioeconomic status [SES], etc.) and SWB within developing economies, and is this correlation statistically stronger than what has been reported in developed economies? The second aim of the study is to test for moderators, to determine the

Ryan T. Howell, Department of Psychology, San Francisco State University; Colleen J. Howell, Department of Environmental Science, University of California, Riverside.

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Correspondence concerning this article should be addressed to Ryan Howell, Department of Psychology, San Francisco State University, 1600 Holloway Avenue, San Francisco, CA 94132. E-mail: rhowell@sfsu.edu

sample-specific factors that affect the economic status–SWB relation within developing countries.

Defining Economic Status and SWB in Economically Developing Countries

Economic Status

We have chosen "economic status" as an overarching term to refer to objective income (a flow variable) and objective wealth[1] (a stock variable). Differences in household structure and the prevalence of unconventional income-earning activities within developing country samples (see Graham, 2005; Smith, 2003; Stănculescu et al., 2005; Tiliouine, Cummins, & Davern, 2006) may lead researchers to choose different measures of economic status to approximate objective income, assets, or wealth. These measures may include personal income (Cheung & Leung, 2004; Tiliouine et al., 2006), household income (Hayo, 2003; Yip et al., 2006), per capita household income (Graham, Eggers, & Sukhtankar, 2004; Smith, 2003), number of household or farm assets owned (Brinkerhoff, Fredell, & Frideres, 1997; Graham & Pettinato, 2001), total value of household assets (Howell, Howell, & Schwabe, 2006), objective SES (Gitmez & Morcol, 1994; Lever, 2000), or household savings (Brinkerhoff et al., 1997; Howell et al., 2006).

SWB

The current project is concerned with what most researchers term *subjective well-being* (SWB). SWB is understood broadly to include both transient emotional phenomena (e.g., pleasant and unpleasant affective experiences) as well as more enduring assessments of life satisfaction (Cummins, 2000; Diener, 2000; Diener et al., 1999; Moore, Leslie, & Lavis, 2005). SWB encompasses the constructs of happiness, affect balance (the frequency of positive vs. negative emotions; Bradburn, 1969), overall life satisfaction, and domain satisfaction[2] (Arthaud-Day & Near, 2005; Diener, 2000; Diener et al., 1999). Happiness and affect balance are distinguished as emotional appraisals that may be influenced by a respondent's present mood (Diener et al., 1999), while evaluations of life satisfaction involve more cognitive assessments of the quality of life as a whole and are generally independent of one's current emotional state (Diener, Emmons, Larsen, & Griffin, 1985; Heller, Watson, & Ilies, 2004). Although SWB facets are theoretically distinct (Diener et al., 1999), measures of life satisfaction, happiness, and affect (both state and trait measures) are positively correlated ($r = .48–.66$; Watson & Clark, 1994; also see Diener et al., 1999; Tsou, & Liu, 2001). Because high ratings of happiness, life satisfaction, and positive affect all indicate high levels of subjective well-being, we will treat each construct as a variant of subjective well-being and will use SWB as a generic term to describe any facet of subjective well-being.

Understanding the Economic Status–SWB Relation

In the mid-1900s, Cantril (1965) pioneered a project to elicit the aspirations of individuals living in various socioeconomic situations from countries in different phases of development. After 6 years of interviewing over 20,000 people in 13 nations, the data pointed overwhelmingly in one direction: People perceived that more money, more possessions, and an improved quality of life would make them happier. Regardless of whether an individual was from India making $13 a month or from the U.S. making $8,000 a month, Cantril found that material prosperity was desired by people of all economic circumstances.

Although individuals continue to express monetary wishes and material aspirations regardless of economic standing (see Lever, 2000; Li et al., 1998), the relationship between economic status and SWB is actually complex. First, impressive economic growth within developed economies, at the country level, is typically not associated with large increases in average SWB (Diener & Suh, 1997; Easterlin, 2001; see Frijters, Shields, & Haisken-DeNew, 2004, for an exception). Further, past research has found that the economic status–SWB correlation tends to adhere to the economic law of diminishing marginal utility: As income rises, each additional dollar contributes less additional satisfaction. This concave[3] effect between economic status and SWB has been replicated in several cross-national studies (Diener et al., 1993; Schyns, 2002; Veenhoven, 1991, 1994; Zavisca & Hout, 2005), across samples varying by income and wealth both within developed economies (Cummins, 2000) and developing economies (Graham & Pettinato, 2002), and within developing countries controlling for society and institutions (Møller & Saris, 2001). In these studies, the strongest economic status–SWB correlations tend to be reported in poor developing countries, while the weakest correlations tend to be demonstrated in the wealthier developed countries.

Psychologists, sociologists, and economists have proposed two main theories to explain the two sides of this phenomenon. Easterlin's paradox—the counterintuitive finding that the economic status–SWB relation is weak among developed country samples and that SWB fails to rise with rising incomes—is explained by the fact that, for wealthier individuals, SWB is impacted by relative economic status (via comparisons with one's past economic status, others' economic status, or aspirations for higher economic status) rather than *absolute* economic status (Easterlin, 1974, 1995, 2001).

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[1] For ease of discussion, *income* will be used to refer to all measures of objective household or personal income as well as to various proxies of objective income (e.g., expenditures) that represent the flow of money or liquid assets to the individual or household. *Wealth* will be used to refer to all measures and proxies of objective wealth (e.g., savings, number or value of durable household goods, objective socioeconomic status) that represent a stock of monetary or capital resources.

[2] In addition to these conventional constituents of SWB, Ryff (1989) suggests that psychological well-being includes several components of positive functioning (e.g., autonomy, environmental mastery, personal growth, positive relations with others, purpose in life, and self-acceptance), which may be neglected by the more frequently used hedonic measures of affect and life satisfaction (also see Ryff & Keyes, 1995). Three of these facets mirror the three basic psychological needs (autonomy, competence, and relatedness) proposed by self-determination theory (Ryan & Deci, 2000). Similarly, Peterson and Seligman (2004) developed the Values in Action (VIA) Signature Strengths Questionnaire, which measures 24 character strengths, some of which are associated with life satisfaction (Park, Peterson, & Seligman, 2004). Although these eudemonic conceptualizations highlight important facets of well-being, they have rarely (if ever) been used within studies examining the association between economic status and SWB in developing countries.

[3] *Concave*, here and elsewhere, implies that the correlation coefficient between income and well-being decreases as income increases. This phenomenon may also be called a *curvilinear effect.*

Easterlin posited that absolute income and assets strongly predict SWB only until a "population is freed from subsistence level needs for food, clothing and shelter" (Easterlin, 2001, p. 40). This position, known as need theory, is often used to explain the stronger economic status–SWB correlations often observed among poorer samples.

Need Theory

A number of researchers have cited need theory to explain both the strong economic status–SWB relation at lower income levels as well the diminishing marginal effect of economic status on SWB as income and wealth rise (e.g., Ahuvia, 2002; Arthaud-Day & Near, 2005; Biswas-Diener & Diener, 2001; Brinkerhoff, Fredell, & Frideres, 1997; Diener & Biswas-Diener, 2002; Diener & Lucas, 2000; Diener et al., 1993; Frey & Stutzer, 2000; Fuentes & Rojas, 2001; Lever, 2004; Oishi, Diener, Lucas, & Suh, 1999; Schyns, 1998; Suhail & Chaudhry, 2004; Veenhoven, 1991; Zavisca & Hout, 2005). As currently proposed, need theory posits that income and assets have their strongest influence on SWB when they are able to satisfy the most basic of physiological needs, such as sufficient food, proper nutrition, clothing, sanitation, and shelter (see Diener & Biswas-Diener, 2002; Diener & Lucas, 2000; Møller & Schlemmer, 1983; Veenhoven, 1991). Once these needs are fulfilled, additional economic resources directly affect SWB to a lesser degree—this, again, is the Easterlin Paradox—perhaps because higher-order needs are generally non-material (e.g., belongingness, love, esteem, self-actualization; see Arthaud-Day & Near, 2005; Diener & Diener, 1995; Diener, Oishi, & Lucas, 2003; Lever, Pinol, & Uralde, 2005). Another possible explanation for this phenomenon "is that norms and expectations adapt upward at about the same rate as income increases, and thus after basic needs are met, more income does not make people happier" (Graham, 2005, p. 206).

Past studies have claimed support for need theory by using two main research approaches. The most prevalent approach involves comparing economic status–SWB correlations for wealthier and poorer samples or nations. While not a robust test to prove need theory, the logic behind correlation comparisons assumes that people who fall into a category of low economic status are the least likely to have their basic needs met and, thus, are most likely to experience substantial gains in SWB as those needs become satisfied via additional income or wealth (Camfield, Choudhury, & Devine, 2006; Cummins, 2000; Diener et al., 1999; Easterlin, 1995; Fuentes & Rojas, 2001; Graham, 2005; Lever et al., 2005; Royo & Velazco, 2006; Smith, 2003; Suhail & Chaudhry, 2004; Veenhoven, 1991). Therefore, in a cross-sectional analysis, one would expect to find a strong positive economic status–SWB correlation for samples or subsamples comprising poor individuals that live on or around the threshold of basic need satisfaction. For samples or subsamples with relatively high economic status—and for whom there is no concern over the ability to meet basic needs—one would expect a weak relation between economic status and SWB. Results confirming significantly stronger correlations among poorer groups than among wealthier groups have been cited as support for need theory within Bangladesh (Camfield, Choudhury, & Devine, 2006), India (Biswas-Diener & Diener, 2001), Latin America (Graham & Pettinato, 2002), Mexico (Fuentes & Rojas, 2001; Lever, 2004), Pakistan (Suhail & Chaudhry, 2004), Russia (Zavisca & Hout, 2005), Korea (Kim, 1998; Lee, Kim, & Shin, 1982), South Africa (Møller & Saris, 2001), and Thailand (Royo & Velazco, 2006), among others (e.g., Arthaud-Day & Near, 2005; Cummins, 2000; Diener, Diener, & Diener, 1995; Diener et al., 1993; Veenhoven, 1991).

Other research has approached support for need theory by examining SWB as it relates to perceived need fulfillment at different levels of income or wealth. Several studies demonstrated that households expressing discontent with food consumption, housing, hygiene, health, or clothing report significantly lower SWB, on average, than do households within the same sample whose basic needs are reported to be satisfied (Ahmed, Chowdhury, & Bhuiya, 2001; Biswas-Diener & Diener, 2001; Brinkerhoff et al., 1997; Camfield, Choudhury, & Devine, 2006; Fuentes & Rojas, 2001; Gitmez & Morcol, 1994; Royo & Velazco, 2006). Further, poorer samples in developing economies define SWB as including basic physical need satisfaction (e.g., food intake, housing security), whereas wealthier respondents in these same countries stress more non-material or higher-level needs (e.g., autonomy, personal security, peace of mind, and status; Cummins, 2000; Mahmuda, 2003; Oishi et al., 1999). Finally, in a cross-national study of 39 countries, Diener, Diener, and Diener (1995) reported that average national SWB correlates significantly with the degree to which basic needs are met for the majority of citizens.

Although individuals for whom basic needs are not fulfilled can certainly be found in any type of society (developing or developed; Cummins, 2000), there is agreement among economists, sociologists, and psychologists that "if there is a threshold beyond which more money does not increase average levels of enhanced reported well-being, most developing economies have not yet crossed it" (Graham, 2005, p. 208; see also Argyle, 1999; Easterlin, 1995). Alternatively, "wealthier nations tend to uniformly meet the physical needs of virtually all of their citizens" (Diener, Diener, & Diener, 1995, p. 852; Biswas-Diener, Vitterso, & Diener, 2005; Kenny, 2005). Easterlin (2001) argued that because individuals in wealthy countries compare their economic standing with that of their peers—a practice that is relatively less common in poorer countries—being poor in a developing economy is very different from being poor in a wealthy country (at least when examining the causes and predictors of well-being). For example, Smith (2003) demonstrated that Americans who are poor report significantly higher levels of happiness when compared with poor individuals from the former Soviet Union even after controlling for several sociodemographic variables. Thus, due to the prevalence of poverty within developing nations (Sachs, 2005; World Bank, 2007), and due to the hypothesis that samples' absolute incomes are a stronger predictor of well-being in poor developing economies than in wealthy developed economies, an assessment of the relationship between objective economic status and SWB for individuals at or around the threshold of basic needs is best undertaken by focusing on samples residing within developing countries.

Past Research Syntheses Examining the Economic Status–SWB Relation in Poverty

Few research syntheses have attempted to confirm whether economic status–SWB correlations are significantly stronger within economically developing countries than within economi-

cally developed countries. Cummins (2000) meta-analytically combined effect sizes from 25 studies and reported the personal income–SWB relation for low-income samples ($r = .26$, $k = 9$) to be stronger than that for high-income samples ($r = .14$, $k = 24$). This synthesis is limited in its generalizability to the extent that it focused on low-income samples in economically developed countries (with the exception of one sample from South Africa), focused on only a single measure of income, and circumscribed its search to articles filed within the Australian Centre on Quality of Life (approximately 3,000 articles). Arthaud-Day and Near (2005) conducted a qualitative review of the absolute income–SWB literature and concluded that the income–SWB relation is positive and statistically significant—but weak. They state that the literature supported the assumption that income–SWB relations within developing countries are stronger than those observed within developed countries. However, importantly, their claim demands statistical validation.

Need for a Meta-Analysis

Despite the contribution of past research in providing a general estimate of the strength of the economic status–SWB relation within wealthy developed country samples, there is, to date, no consensus over the extent to which economic status relates to SWB among developing country samples. Both aforementioned reviews supported the hypothesis that the economic status–SWB relation is stronger in developing economies, yet neither attempted a comprehensive synthesis of the current economic status–SWB literature examining economically developing countries. Further, there was little (if any) acknowledgement of some cross-disciplinary research findings that have demonstrated weak, non-significant, or negative economic status–SWB relations within developing country samples (e.g., Foley, 2005; Kousha & Mohseni, 2000; Møller, Dickow, & Harris, 1999; Morawetz et al., 1977; Namazie & Sanfey, 2001; Seik, 2000; Tan et al., 2006; Tsou & Liu, 2001).

The past 10–15 years have witnessed a growing body of research from several social science fields (e.g., economics, psychology, sociology, urban services) in which the correlation between economic status and SWB has been investigated within developing countries. Yet, instead of uniting and organizing researchers in these various fields to advance the study of economic status and SWB among disparate populations, the interdisciplinary nature of this scholarship has led to a rather disconnected body of work. Indeed, the volume and range of research outlets in which findings have been presented may result in relatively few "hits" from subject-specific literature search techniques, thus misleading researchers to conclude that little research has been conducted in this area (e.g., Biswas-Diener & Diener, 2001; Fuentes & Rojas, 2001; Tsou & Liu, 2001; Yip et al., 2006). Thus, a quantitative research synthesis of the entire relevant literature, regardless of academic discipline or study objective, is imperative for understanding the economic status–SWB relation, and its moderators, among developing country samples.

Possible Moderators of the Economic Status–SWB Relation

Past research within developing countries suggests that heterogeneity in the correlations between economic status and SWB may be due to complex interactions with other sample-level socioeconomic (e.g., country development status), demographic (e.g., education and gender), or geographic variables, as well as to how certain variables (e.g., income or wealth, SWB) are operationalized (Aryee, 1999; Biswas-Diener & Diener, 2001; Brinkerhoff et al., 1997; Diener et al., 1993; Fuentes & Rojas, 2001; Rojas, 2005; Zavisca & Hout, 2005). Thus, a complete understanding of the economic status–SWB relation requires investigating potential sample-level moderators of the association.

SWB construct. Although researchers may use various SWB terms interchangeably, the current study predicts that the construct used to measure SWB may be a significant moderator of the economic status–SWB relation within developing countries. For example, because of the emotional foundation of happiness (Diener, 1984), this construct may be more weakly related to income than might be a more cognitive evaluation of life quality (e.g., satisfaction with life, quality of life). Kahneman, Krueger, Schkade, Schwarz, and Stone (2004) argued that the task of evaluating life satisfaction prompts individuals to focus on the quality of objective circumstances (e.g., current income, marital status), whereas evaluations of affective experience (e.g., happiness) are less likely to prime such considerations. Lee et al. (1982) contended that assessments of life satisfaction involve consistent judgments of cognitive experiences—one aspect of which may be income—whereas happiness assessments involve short-lived affective judgments and, thus, can be influenced by transient emotions. A second reason the economic status–happiness relation may be weaker in developing countries pertains to translational concerns. In other languages, the English term "happiness" may have multiple meanings (Fuentes & Rojas, 2001; Oishi et al., 1999; Padilla & Lindholm, 1995) or may convey an unintended meaning when translated directly (Zavisca & Hout, 2005). Thus, we expect a weaker relation between economic status and happiness than between economic status and life satisfaction.

Economic status construct. The economic status construct employed in a particular study may also be critical for understanding how income and assets relate to SWB, as not all economic measures are equally efficient at explaining variance in SWB. Within developing country samples, intercorrelations between various economic status measures (e.g., household income, consumption, savings, household possessions) tend to be weaker ($r = .24–.26$; Headey et al., 2004; Howell et al., 2006) than the typical intercorrelations found between various measures of SWB ($r = .44–.72$; Kim, 1998; Lyubomirsky & Lepper, 1999; Suhail & Chaudhry, 2004). Also, separate measures of economic status can explain unique variance in SWB even after controlling for other income and asset constructs (Headey et al., 2004).

Single-item measures of personal or household income may fail to capture important income sources beyond the household's primary cash-income-generating activities and, thus, may lead to the unintentional misreporting or underestimation of household economic status (Diener & Biswas-Diener, 2002). For example, remittances, in-kind income (e.g., agriculture, forest products, hunting, fishing), household production, or periodic income (e.g., odd jobs, seasonal work) can contribute substantially to the budget of a poor, rural household (e.g., Dercon, 2002; Howell, 2006). Thus, the pervasiveness of unconventional income sources and in-kind payments among poor developing country samples is the impetus for many researchers in this field to rely on proxies of income and

wealth (Graham, 2005; Klasen, 1997; Smith, 2003; Stãnculescu et al., 2005; Tiliouine et al., 2006).

These unconventional sources, combined with the unpredictable nature of income for poor households, may result in economic status estimates that are riddled with inaccuracies and unintended omissions. Such inaccuracies would lead to increased measurement error, which would then, following attenuation theory (Lord & Novick, 1968), decrease the estimate of the true correlation between economic status and SWB within a particular population (for tests of attenuation for the economic status–SWB relation, see Howell et al., 2006). Income constructs that are measured least accurately will incur the greatest measurement error, and thus we predict that these measures of income will demonstrate the weakest associations with SWB.

Sample gender composition. Several studies have proposed that gender may moderate the economic status–SWB relation. Adelmann (1987) found the income–happiness correlation for male respondents to be stronger than for female respondents and conjectured that men may find greater satisfaction in occupational activities, while women may derive more happiness from relationships and family. Mahmuda's (2003) study in Bangladesh corroborated Adelmann's hypothesis by showing that women's definitions of SWB emphasize care for family, whereas men's definitions center more on income. George and Brief (1990) demonstrated that men with high financial requirements report stronger income–life satisfaction relations than do women in general. Similarly, Aryee (1999) argued that the salience of one's role as the household breadwinner—typically male household members within developing countries—may moderate the relation between income and life satisfaction. Given these and other findings of gender-related differences in perspectives on income and wealth with SWB (e.g., Brinkerhoff et al., 1997; Zavisca & Hout, 2005), we expect that the gender composition of the sample will moderate the economic status–SWB relation. Specifically, we predict the economic status–SWB association to be strongest for predominately male samples.

Objectives of the Current Study

The current study meta-analyzes past research examining the economic status–SWB relation among populations living in developing economies. Our goal is first to estimate the overall *r* effect size for developing economies and then to assess whether this effect size is statistically stronger than that observed among developed country samples. As outlined above, this meta-analysis is intended to improve our understanding of the sample-specific factors that may influence the observed variation in reported economic status–SWB effect sizes among developing countries. Thus, this project extends past research, including qualitative and quantitative syntheses, by (a) concentrating solely on studies conducted within developing countries, (b) searching for studies in disparate disciplines, (c) employing a number of meta-analytic search techniques to identify as many relevant published and unpublished studies as possible, and (d) testing for sample-level moderators of the effect sizes, which may help to inform and improve future research methodology.

Method

Literature Search Procedures

Several search techniques were used to retrieve applicable studies for inclusion. Only articles written in English were considered. Studies were identified via electronic library databases (PsychINFO, Web of Science—which included both forward and backward searches, and *Dissertation Abstracts International*); a Web-based search engine (Google Scholar); selected manuscript reference lists (e.g., Argyle, 1999; Arthaud-Day & Near, 2005; Diener et al., 1999); and manual searches of *Social Indicators Research* (1980–July 2006) and the *Journal of Happiness Studies* (2000–July 2006). Computerized searches involved all possible combinations of terms reflecting SWB (*life satisfaction, satisfaction with life, happiness, quality of life, emotional well-being, positive psychology, positive affect*), income (*wealth, income, money, assets, possessions, poor, poverty, needs*), and developing economies (*third-world, least developed, developing, low-income, underdeveloped, transitional*). Subsequently, in a series of additional searches involving Web of Science and Google Scholar, the name of each developing country (using the World Bank [2007] classification) was paired with the list of SWB terms in order to retrieve relevant SWB studies that the previous searches may have omitted. We examined the reference sections of the studies obtained. Further, the title of each article was submitted to Web of Science for a "times cited" search. All potentially relevant studies published or posted through July 1, 2006, were evaluated for inclusion.

Inclusion and Exclusion Criteria for Studies

Studies included. Only studies that met an established set of criteria were chosen for inclusion in the meta-analysis. To be selected, a study had to involve (a) participants of working age that resided within a developing economy (see Footnote 5), (b) a measure of SWB, and (c) an objective measure of income or wealth. Acceptable constructs for SWB included single- and multiple-item measures of life satisfaction, happiness, SWB (either study-defined or the average of life satisfaction and happiness), domain satisfaction (a composite of satisfaction within different life domains such as work, family, social life, health, finances, etc.), quality of life (study-defined), well-being (study-defined), positive affect, and negative affect. Acceptable economic status measures for this meta-analysis included absolute or objective measures of the following: household income, per capita household income, personal income, household index (number or value of durable goods or assets), expenditures, objective SES,[4] housing quality, and standard of living.

For studies that met these criteria, it was necessary that associations between SWB and objective income or wealth be stated

[4] SES was included as an acceptable measure of income only when the original study authors combined multiple objective measures of absolute income into a composite variable (e.g., using a standardized weighted system that weighted an individual's household income, number of durable goods, and housing quality into a single composite variable). Thus, any study that measured relative or subjective SES (i.e., asked the participant to place themselves into an SES category) was excluded.

directly or be computable from summary tables, descriptive statistics (e.g., means and standard deviations, or a table of counts), or inferential statistics (e.g., *t* statistics, *F* ratios, odds ratios, or chi-square statistics). For studies that used multiple regression or probit analyses, *r*-equivalent effect sizes were computed from exact *p* values (if available), conservative *p* cutoffs (e.g., .01, .05), or zero-order correlations (when provided by authors on request). For studies that reported results from multiple independent samples (typically multiple samples from different developing economies), each independent sample was included and coded separately.

Studies excluded. Studies that examined the correlation between economic status and SWB for respondents in specific stages of life (e.g., adolescents, university students, older samples) or for clinical populations (e.g., samples with mental illness, physical disabilities, or terminal illnesses) were excluded from the meta-analysis because of the potential confounds associated with the samples' characteristics. Studies that measured only subjective or relative wealth (e.g., "Compared to others in your country, how wealthy are you?") or income satisfaction were excluded. Finally, studies that correlated national income or wealth with national SWB (using mean SWB and an aggregate measure of income or wealth, such as gross domestic product) were excluded.

Coding of Samples

Coding. All independent samples meeting the inclusion criteria were coded for possible moderators of the economic status–SWB relation (see Table 1). These moderators were (a) geographic location (coded as region of the world); (b) economic stage of development; (c) sampling technique (nationally representative, urban, rural); (d) SWB construct; (e) economic status measure; (f) proportion of sample with a secondary education; (g) proportion male respondents; and (h) type of effect size reported or computed (zero-order *r* or partial *r*).

The following criteria were established to code each moderator. The geographic location (country) was determined from each study's Method section. Region of the world was coded by matching study locations (by country) to the six geographic regions designated by the World Bank (2007). Samples were grouped into four economic development categories (low income, lower middle income, upper middle income, and high income developing[5]) based on each country's World Bank classification (i.e., per capita gross national income [GNI]) at the time of sampling. The categories are the following: low income (GNI per capita = $905 or less); lower middle income ($906–$3,595); upper middle income ($3,596–$11,115); and high income ($11,116 or more). Within the high-income category are countries that are members of the Organisation for Economic Co-Operation and Development (OECD) and those that are non-members. Although both OECD and non-OECD countries are classified as "high-income" by the World Bank, the two categories differ substantially on average per capita GNI. The average per capita GNI for non-OECD countries is $18,014 per year. The average per capita GNI for OECD countries is $38,120 per year. Thus, only non-OECD countries are included in the meta-analysis. For studies pre-dating 1987, we used the author's description of the economic status of the sample (using keywords such as *third-world*) at the time of the study (e.g., Shinn, 1986). Sampling technique was categorized as nationally representative, urban/city, or rural/village.

For each study, separately reported SWB constructs were coded from key adjectives (e.g., satisfied, happy) and scale names (e.g., Satisfaction with Life Scale, Diener et al., 1985; Ladder Scale of General Well-Being, Cantril, 1965). If item or response format wording was not reported, the SWB term employed by the study author was used for coding. SWB constructs that involved a composite of items were coded as quality of life. For each study, separately reported income and wealth constructs were coded from author-reported variable definitions (e.g., household income, personal income, per capita household income, number of assets, savings, objective SES). When multiple indicators of income and wealth (e.g., household income, quality and/or location of house) were used to form a composite economic status variable, the composite was coded as objective SES. Sample demographics related to education and gender were obtained from the Method section of studies that reported these variables. Authors that provided the economic status–SWB correlation via personal communication were asked also to provide relevant demographic statistics, if available. Both authors coded all of the studies, and the intercoder agreement was 97%. All disagreements were resolved by discussion.

Effect sizes. On completion of coding, effect sizes for the economic status–SWB relation were computed for each sample (see Table 1). The specific types of effect sizes used in this meta-analysis are from the *r* family, the most common of which is the Pearson product–moment correlation. The *r* family also includes other bivariate measures of association (e.g., phi-coefficient, point-biserial correlation, Spearman rank-order correlation coefficient; Rosenthal, 1994). For studies that did not report Pearson correlations between income or wealth and SWB, *r* effect sizes were computed by using Comprehensive Meta-Analysis 2.0 (Borenstein, Hedges, Higgins, & Rothstein, 2005). For those samples that reported only *p* values or that used multiple regression or probit models, exact *p* values were used to determine *r*-equivalent effect sizes (see Rosenthal & Rubin, 2003). Positive associations between economic status and SWB were expected for most SWB constructs. The one exception was the expected negative association between income and negative affect (such as with Ahmed et al., 2001). Positive effect sizes indicate the expected direction of the economic status–SWB relation (i.e., positive correlations between life satisfaction, happiness, quality of life, positive affect, or domain satisfaction and income or wealth; a negative relation between negative affect and income or wealth).

Data Analysis

Unit of analysis. For the current study, the independent sample was the primary unit of analysis. For each sample that reported

[5] The World Bank (2007) classifies each country of the world into one of five economic development groupings based on GNI per capita by using the World Bank Atlas method. According to the World Bank (2007), GNI per capita is the best single indicator of economic capacity, progress, welfare, and success in development. OECD membership was chosen as the criterion for determining whether or not a country was considered for inclusion in the meta-analysis as a developing country. By grouping all non-OECD countries into the four income categories based on GNI per capita (low-income, lower middle income, upper middle income, and high-income developing), we are able to observe the impact of "stage of economic development" as a moderator of the economic status–SWB relation as well as compare the relations within "wealthier" developing economies to those within "poorer" developing economies.

Table 1
Effect Size Estimates and Sample Characteristics for Samples Ordered by Country and Then in Descending Order by Effect Size

Study	*N*	Mean age	Country	Economic development stage	Sampling technique	SWB construct	Economic status measure	Proportion with secondary education	Proportion male	Effect size	Effect size reported/ computed
Tiliouine et al. (2006)	731	25.00	Algeria[a]	Lower middle	Urban/city	Domain satisfaction	Personal income	.94	.50	.04	*r*
Graham & Pettinato (2001)	694	42.54	Argentina[b]	Upper middle	Nationally representative	Life satisfaction	Household index	.48	.48	.28	*r*
Camfield et al. (2006)	915		Bangladesh[c]	Low income	Nationally representative	Happiness	SES		.00	.34	*r*
Ahmed et al. (2001)	3,624		Bangladesh[c]	Low income	Rural/villages	Worry	SES			.17	*r*
Smith (2003)	591	39.74	Belarus[d]	Lower middle	Nationally representative	Happiness	Per capita income	.54	.46	.08	*pr*
Graham & Pettinato (2001)	631	36.91	Bolivia[b]	Lower middle	Nationally representative	Life satisfaction	Household index	.42	.49	.11	*r*
Cantril (1965)	2,168		Brazil[b]	Low income	Nationally representative	Life satisfaction	SES	.10	.45	.38	*r*
Graham & Pettinato (2001)	768	37.52	Brazil[b]	Lower middle	Nationally representative	Life satisfaction	Household index	.65	.48	.07	*r*
Hayo (2003)	995	47.74	Bulgaria[d]	Lower middle	Nationally representative	Life satisfaction	Household income	.54	.48	.20	*r*
Graham & Pettinato (2001)	647	41.79	Chile[b]	Upper middle	Nationally representative	Life satisfaction	Household index	.37	.45	.31	*r*
Cheung & Leung (2004)	732	40.60	China[e]	Lower middle	Urban/city	Life satisfaction	Personal income		.50	.22	*r*
Sirgy et al. (1995)	191	32.88	China[e]	Lower middle	Urban/city	Life satisfaction	Income			.21	*r*
Jagodzinski (2005)	793	39.10	China[e]	Lower middle	Urban/city	Combined	Combined			.18	*r*
Yang (2001)	308	40.00	China[e]	Lower middle	Urban/city	Life satisfaction	Household income	.70	.49	.16	*r*
Yip et al. (2006)	1,195	45.00	China[e]	Lower middle	Rural/village	Life satisfaction	Household income		.46	.14	*pr*
Foley (2005)	662		China[e]	Lower middle	Mixed	Life satisfaction	Household income	.71	.48	.11	*r*
Foley (2005)	207		China[e]	Lower middle	Mixed	Life satisfaction	Household income	.15	.50	−.10	*r*
Graham & Pettinato (2001)	823	37.83	Columbia[b]	Lower middle	Nationally representative	Life satisfaction	Household index	.48	.49	.19	*r*
Graham & Pettinato (2001)	688	39.42	Costa Rica[b]	Upper middle	Nationally representative	Life satisfaction	Household index	.60	.50	.05	*r*
Cantril (1965)	992		Cuba[b]	Low income	Nationally representative	Life satisfaction	SES	.38	.57	.16	*r*
Hayo (2003)	651	44.58	Czech Republic[d]	Upper middle	Nationally representative	Life satisfaction	Household income	.77	.46	.18	*r*
Cantril (1965)	2,416		Dominican Republic[b]	Low income	Nationally representative	Life satisfaction	SES	.07	.65	.42	*r*
Graham & Pettinato (2001)	716	37.56	Ecuador[b]	Lower middle	Nationally representative	Life satisfaction	Household index	.41	.50	.04	*r*
Graham & Pettinato (2001)	619	37.44	El Salvador[b]	Lower middle	Nationally representative	Life satisfaction	Household index	.46	.49	.02	*r*
Smith (2003)	470	39.73	Estonia[d]	Upper middle	Nationally representative	Happiness	Per capita income	.60	.45	.14	*pr*

Table 1 (*continued*)

Study	*N*	Mean age	Country	Economic development stage	Sampling technique	SWB construct	Economic status measure	Proportion with secondary education	Proportion male	Effect size	Effect size reported/ computed
Graham & Pettinato (2001)	671	36.24	Guatemala[b]	Lower middle	Nationally representative	Life satisfaction	Household index	.54	.51	.12	*r*
Graham & Pettinato (2001)	616	37.57	Honduras[b]	Lower middle	Nationally representative	Life satisfaction	Household index	.55	.49	.08	*r*
Aryee (1999)	255	40.00	Hong Kong, China[e]	High income	Urban/city	Life satisfaction	Personal income	1.00	.47	.21	*r*
Leung & Lee (2005)	388	36.80	Hong Kong, China[e]	High income	Urban/city	Life satisfaction	Personal income	.67	.47	.11	*pr*
Liao et al. (2005)	860	40.80	Hong Kong, China[e]	High income	Urban/city	Combined	Personal income	.57	.49	.06	*pr*
Headey et al. (2004)	3,061		Hungary[d]	Upper middle	Nationally representative	Life satisfaction	Combined	.58	.45	.19	*r*
Hayo (2003)	911	44.21	Hungary[d]	Upper middle	Nationally representative	Life satisfaction	Household income			.17	*r*
Lelkes (2002)	5,365		Hungary[d]	Upper middle	Nationally representative	Life satisfaction	Household income			.14	*pr*
Lelkes (2002)	3,802		Hungary[d]	Upper middle	Nationally representative	Life satisfaction	Household income			.13	*pr*
Stănculescu et al. (2005)	2,979		Hungary[d]	Upper middle	Nationally representative	Life satisfaction	Household income			.10	*pr*
Cantril (1965)	2,366		India[c]	Low income	Nationally representative	Life satisfaction	SES	.06		.42	*r*
Biswas-Diener & Diener (2001)	83	35.40	India[c]	Low income	Urban/city	Life satisfaction	Combined		.35	.38	*r*
Banerjee et al. (2004)	1,024		India[c]	Low income	Rural/village	Happiness	Household expenditure		.40	.23	*pr*
Brinkerhoff et al. (1997)	341	35.00	India[c]	Low income	Rural/village	Combined	Combined	.13	.91	.19	*r*
Jagodzinski (2005)	818	35.46	India[c]	Low income	Urban/city	Combined	Combined	.81	.52	.10	*r*
Kousha & Mohseni (1997)	187	35.60	Iran[a]	Lower middle	Urban/city	Domain satisfaction	SES	.89	.00	.23	*pr*
Kousha & Mohseni (2000)	1,026	32.90	Iran[a]	Lower middle	Urban/city	Happiness	Personal income	.80	.41	.09	*r*
Kousha & Mohseni (2000)	535	32.80	Iran[a]	Lower middle	Urban/city	Happiness	Personal income	.78	.51	.05	*r*
Cantril (1965)	1,170		Israel[a]	Low income	Nationally representative	Life satisfaction	SES	.12	.49	.55	*r*
Morawetz et al. (1977)	30	38.00	Israel[a]	Upper middle	Rural/village	Life satisfaction	Per capita income	.46	.44	−.38	*pr*
Namazie & Sanfey (2001)	3,797	35.00	Kyrgyzstan[d]	Lower middle	Nationally representative	Life satisfaction	Household expenditure	.64	.46	.04	*r*
Lee et al. (1982)	1,500		Korea, Rep.[e]	Lower middle	Urban/city	QOL	SES	.92	.51	.27	*r*
Shinn et al. (1983)	1,220		Korea, Rep.[e]	Lower middle	Nationally representative	Combined	Household income			.25	*r*
Jagodzinski (2005)	752	37.21	Korea, Rep.[e]	High income	Urban/city	Combined	Combined			.17	*r*
Kim (1998)	1,000		Korea, Rep.[e]	High income	Nationally representative	Combined	Combined	.73		.11	*r*

(Table continues)

Table 1 (*continued*)

Study	*N*	Mean age	Country	Economic development stage	Sampling technique	SWB construct	Economic status measure	Proportion with secondary education	Proportion male	Effect size	Effect size reported/ computed
Smith (2003)	442	39.18	Latvia[d]	Upper middle	Nationally representative	Happiness	Per capita income	.71	.40	.03	*pr*
Smith (2003)	413	41.52	Lithuania[d]	Upper middle	Nationally representative	Happiness	Household income	.53	.46	.14	*pr*
Howell et al. (2006)	307	42.42	Malaysia[e]	Upper middle	Rural/village	Life satisfaction	Household index	.02	1.00	.28	*r*
Jagodzinski (2005)	729	36.69	Malaysia[e]	Upper middle	Nationally representative	Combined	Combined	.59	.49	−.03	*r*
Lever (2004)	370	36.00	Mexico[b]	Upper middle	Urban/city	Domain satisfaction	Household income	.68	.50	.43	*r*
Lever (2000)	768		Mexico[b]	Upper middle	Urban/city	Domain satisfaction	SES	.47	.50	.22	*r*
Fuentes & Rojas (2001)	339	30.60	Mexico[b]	Upper middle	Urban/city	QOL	Household income			.21	*r*
Rojas (2004)	1,540		Mexico[b]	Upper middle	Nationally representative	Happiness	Combined		.50	.17	*r*
Graham & Pettinato (2001)	797	35.95	Mexico[b]	Upper middle	Nationally representative	Life satisfaction	Household index			.16	*r*
Jagodzinski (2005)	800	35.23	Myanmar[e]	Low income	Urban/city	Combined	Combined	.47	.49	.16	*r*
Graham & Pettinato (2001)	642	35.26	Nicaragua[b]	Low income	Nationally representative	Life satisfaction	Household index	.52	.50	.01	*r*
Cantril (1965)	1,200		Nigeria[b]	Low income	Nationally representative	Life satisfaction	SES	.14	.81	.52	*r*
Suhail & Chaudhry (2004)	983		Pakistan[c]	Low income	Urban/city	Combined	Combined		.50	.36	*r*
Cantril (1965)	642		Panama[b]	Low income	Nationally representative	Life satisfaction	SES	.20	.49	.52	*r*
Graham & Pettinato (2001)	601	39.13	Panama[b]	Upper middle	Nationally representative	Life satisfaction	Household index	.42	.49	.29	*r*
Graham & Pettinato (2001)	390	39.18	Paraguay[b]	Lower middle	Nationally representative	Life satisfaction	Household index	.44	.49	.15	*r*
Graham & Pettinato (2001)	539	36.83	Peru[b]	Lower middle	Nationally representative	Life satisfaction	Household index	.34	.50	.16	*r*
Cantril (1965)	500		Philippines[e]	Low income	Nationally representative	Life satisfaction	SES			.44	*r*
Bulatao (1973)	941		Philippines[e]	Low income	Urban/city	Combined	Combined			.18	*r*
Winter et al. (1999)	600	54.10	Poland[d]	Upper middle	Urban/city	Domain satisfaction	Combined	.60	.46	.48	*r*
Hayo (2003)	1,103	47.36	Poland[d]	Upper middle	Nationally representative	Life satisfaction	Household income		.06	.16	*r*
Stănculescu et al. (2005)	1,661		Romania[d]	Lower middle	Nationally representative	Life satisfaction	Household income	.50	.47	.33	*pr*
Andrén & Martinsson (2006)	848	43.50	Romania[d]	Lower middle	Nationally representative	Life satisfaction	Household expenditure	.57	.50	.15	*pr*
Hayo (2003)	985	43.02	Romania[d]	Lower middle	Nationally representative	Life satisfaction	Household income			.12	*r*
Ferrer-I-Carbonell & Van Pragg (2001)	1,845		Russian Federation[d]	Upper middle	Nationally representative	Life satisfaction	Household income			.37	*r*
Ferrer-I-Carbonell & Van Pragg (2001)	2,074		Russian Federation[d]	Upper middle	Nationally representative	Life satisfaction	Household income			.22	*r*
Smith (2003)	401	40.90	Russian Federation[d]	Upper middle	Urban/city	Happiness	Per capita income			.21	*pr*
Graham et al. (2004)	4,524	40.67	Russian Federation[d]	Upper middle	Nationally representative	Life satisfaction	Per capita income		.42	.21	*r*

Table 1 (*continued*)

Study	*N*	Mean age	Country	Economic development stage	Sampling technique	SWB construct	Economic status measure	Proportion with secondary education	Proportion male	Effect size	Effect size reported/ computed
Saris (2001)	2,000		Russian Federation[d]	Upper middle	Nationally representative	Life satisfaction	Combined	.65	.45	.16	*r*
Zavisca & Hout (2005)	5,504	46.00	Russian Federation[d]	Upper middle	Nationally representative	Life satisfaction	Household income	.82	.43	.16	*r*
Ibrahim & Chung (2003)	295	36.00	Singapore[e]	High income	Urban/city	Life satisfaction	Household income	.55	.48	.16	*r*
Seik (2000)	931	37.50	Singapore[e]	High income	Urban/city	Life satisfaction	Household income	.62	.48	.10	*r*
Tan et al. (2006)	987	37.00	Singapore[e]	High income	Urban/city	Domain satisfaction	Personal income	.83	.51	.07	*pr*
Seik (2000)	1,935	32.00	Singapore[e]	High income	Urban/city	Life satisfaction	Household income	.78	.52	.04	*r*
Keng & Hooi (1995)	242	27.00	Singapore[e]	High income	Urban/city	Life satisfaction	Combined	.86	.57	.02	*r*
Hayo (2003)	289	43.15	Slovak Republic[d]	Lower middle	Nationally representative	Life satisfaction	Household income	.72	.48	.05	*r*
Hayo (2003)	894	50.70	Slovenia[d]	High income	Nationally representative	Life satisfaction	Household income	.63	.51	.22	*r*
Møller et al. (1999)	1,530		South Africa[f]	Upper middle	Nationally representative	Combined	Household income	.19		.42	*r*
Klasen (2000)	8,724		South Africa[f]	Upper middle	Nationally representative	Life satisfaction	Combined			.31	*r*
Møller & Saris (2001)	169		South Africa[f]	Upper middle	Urban/city	QOL	Household income			.27	*pr*
Møller & Saris (2001)	540		South Africa[f]	Upper middle	Urban/city	QOL	Household income			.27	*pr*
Møller & Saris (2001)	650		South Africa[f]	Upper middle	Rural/Village	QOL	Household income			.24	*pr*
Møller (1998)	765		South Africa[f]	Upper middle	Nationally representative	Combined	Household income			.21	*r*
Møller & Dickow (2002)	1,990		South Africa[f]	Upper middle	Nationally representative	Combined	Household income		.43	.16	*r*
Møller (1998)	1,665		South Africa[f]	Upper middle	Nationally representative	Combined	Household income		.34	.12	*r*
Møller & Saris (2001)	361		South Africa[f]	Upper middle	Urban/city	QOL	Household income			.01	*pr*
Møller et al. (1999)	1,290		South Africa[f]	Upper middle	Nationally representative	Happiness	Household income			−.01	*r*
Jagodzinski (2005)	783	36.86	Sri Lanka[c]	Lower middle	Urban/city	Combined	Combined	.97	.51	.22	*r*
Tsou & Liu (2001)	1,533	38.84	Taiwan[e]	Upper middle	Nationally representative	Happiness	Personal income	.65	.50	.07	*pr*
Liao et al. (2005)	1,079	42.10	Taiwan[e]	Upper middle	Urban/city	Combined	Personal income	.80	.44	.01	*pr*
Leelakulthanit & Day (1992)	496		Thailand[e]	Lower middle	Urban/city	Life satisfaction	Household income	.67	.49	.19	*r*
Royo & Velazco (2006)	893	50.00	Thailand[e]	Lower middle	Rural/village	Happiness	Household index	.52	.52	.08	*pr*
Jagodzinski (2005)	799	36.56	Thailand[e]	Lower middle	Nationally representative	Combined	Combined		.77	.06	*r*
Gitmez & Morcol (1994)	129		Turkey[d]	Upper middle	Urban/city	Success in life	SES			.31	*r*
Sirgy et al. (1995)	131	32.32	Turkey[d]	Upper middle	Urban/city	Life satisfaction	Income		.43	.13	*r*

(Table continues)

Table 1 (*continued*)

Study	*N*	Mean age	Country	Economic development stage	Sampling technique	SWB construct	Economic status measure	Proportion with secondary education	Proportion male	Effect size	Effect size reported/ computed
Olena (2005)	5,772	45.82	Ukraine[d]	Lower middle	Nationally representative	Life satisfaction	Combined	.78	.42	.17	*pr*
Graham & Pettinato (2001)	744	45.40	Uruguay[b]	Upper middle	Nationally representative	Life satisfaction	Household index	.59	.45	.22	*r*
Jagodzinski (2005)	708	35.52	Uzbekistan[d]	Low income	Urban/city	Combined	Combined	.94	.46	.14	*r*
Graham & Pettinato (2001)	578	37.65	Venezuela[b]	Upper middle	Nationally representative	Life satisfaction	Household index	.46	.50	.09	*r*
Jagodzinski (2005)	802	34.95	Vietnam[e]	Low income	Urban/city	Combined	Combined	.56	.49	.10	*r*
Cantril (1965)	1,523		Yugoslavia[d]	Low income	Nationally representative	Life satisfaction	SES			.22	*r*
Total *M* (*SD*)	131,935	38.88 (5.12)						.56(.24)	.49(.13)	.20***	

Note. Table organized by country, then by effect size. Positive effect sizes indicate the expected direction of the economic status–SWB relation (i.e., positive correlations between life satisfaction, happiness, quality of life, positive affect, or domain satisfaction and income or wealth; a negative relation between negative affect and income or wealth). Sample sizes correspond to the number of participants used to compute the effect size. The "combined" code for the economic status and SWB constructs implies that multiple indicators of the construct were aggregated. Socioeconomic status (SES) is as defined by the author of the relevant article. Household index is based on a series of questions concerning the number of consumer goods (e.g., indoor plumbing, cars, refrigerators) owned by the household. Domain satisfaction is a composite of satisfaction within different life domains (e.g., work, family, social life, health, finances). Each economy is classified by gross national income (GNI) per capita, calculated using the World Bank (2007) Atlas method. The categories are low income (GNI per capita = $905 or less); lower middle income ($906–$3,595); upper middle income ($3,596–$11,115); and high income ($11,116 or more). For comparison, the average GNI for the US was $44,970 in 2006. *r* = Pearson *r* correlation coefficient; *pr* = partial *r* (e.g., correlation *r* controlled for one or more covariates); QOL = quality of life.

[a] Middle East and North Africa. [b] Latin America and Caribbean. [c] South Asia. [d] Europe and Central Asia. [e] East Asia and Pacific. [f] Sub-Saharan Africa.

***$p < .001$.

multiple economic status–SWB correlations (i.e., multiple-construct samples), a mean effect size was computed by Comprehensive Meta-Analysis 2.0 to form a within-sample aggregate effect size for the sample. For example, two effect sizes were calculated from Biswas-Diener and Diener (2001), who reported correlations with life satisfaction for both objective housing (r = .30) and objective income (r = .45). These two effect sizes were aggregated together for a sample average r effect size of .38. Thus, for all estimates of central tendency and all tests of homogeneity, each independent sample contributed only a single effect size.

When testing for moderators, average effect sizes were computed only from those samples that reported a potential moderating variable. For moderator tests of economic status measures and SWB constructs, two approaches were taken. First, the assumption of independence was upheld and multiple-construct samples were restricted to contributing only a single effect size (the within-sample aggregate effect size) to the average effect size computed for the appropriate construct moderator. Then, the assumption of independence was relaxed and multiple-construct samples were allowed to contribute a unique effect size to each average effect size computed for the constructs on which they were measured. Again, we consider the two effect sizes calculated from Biswas-Diener and Diener (2001; see above): When examining the economic status construct as a moderator, each of these effect sizes was used to compute aggregate effect sizes for the two different economic status constructs they represented (with objective housing representing a wealth variable and objective income representing an income variable). Yet, because these two average effect sizes were computed with data from the same sample, they are not independent of one another. Thus, when the assumption of independence is relaxed, the total number of effect sizes listed can exceed the total number of independent samples, as some samples may be represented more than once. For these reasons, statistically significant group differences are established only when independent samples are significantly different and when there is no overlap in the 95% confidence intervals of non-independent samples.

Fixed effects methods and models. Aggregate r effect sizes and homogeneity tests of the effect sizes were estimated with Comprehensive Meta-Analysis 2.0 by using a fixed effects approach. The fixed effects method of meta-analysis provides a more precise and reliable estimate of the economic status–SWB relation than might be obtained with a random effects approach (Cooper, 1998). All mean r effect sizes were calculated by averaging the weighted (inverse variance weights[6]) correlation coefficients across all independent samples. Homogeneity tests were used to determine whether variance in the weighted effect sizes was explained by the proposed moderators. If a categorical moderator explained significant variance in the effect sizes ($Q_{BET} < .05$) then post hoc contrasts were performed to determine which groups were statistically different. For continuous moderators, meta-regression analyses were used to test whether variation in the effect sizes was explained by the moderator.[7]

Results

Description of the Literature Included

Publication statistics. The search techniques employed for this meta-analysis identified a total of 56 studies that met the established inclusion criteria. The typical study surveyed over 1,000 respondents (*Mdn* = 1,109; *M* = 2,357; *SD* = 2,871). The typical study focused on a country classified as an upper middle income developing economy (where the GNI per capita was calculated to be between $3,596 and $11,115), was published in a peer-reviewed journal, focused on either East Asia and the Pacific or Europe and Central Asia, and used a nationally representative or urban/city sample. Of the 36 studies that reported gender composition, 52.8% had nearly equal male and female participants (45% to 55% range between genders), and of the 28 studies that reported sample education levels, an average of 59.3% (*SD* = 26.4%) of respondents had at least a secondary education (high school or equivalent).

Characteristics of the independent samples. From these 56 studies, 111 independent samples were coded. The number of independent samples reported per study ranged from 1 to 17, with 40 studies (71.4%) reporting a single independent sample, and 10 studies (17.9%) reporting only two independent samples. From these samples, 185 distinct effect sizes were computed between different measures of economic status and SWB. Most samples

[6] The inverse variance weight is the reciprocal of the effect size variance, which is computed as the square root of the standard error. Inverse variance weights correlate positively with sample size.

[7] Although all null hypotheses, fixed effects models, and post hoc comparisons followed steps outlined by Hedges (1994; see Chapter 19 for full details of fixed effects modeling), we provide some basic terminology and background for readers not familiar with meta-analytic procedures. A critical question raised in meta-analysis is whether the effect sizes in the research studies are heterogeneous and, if so, whether sample-specific characteristics explain this variation in effect sizes. Two general fixed effects procedures attempt to answer these questions: one procedure is analogous to analysis of variance, and one procedure is analogous to multiple regression. When the study characteristic is categorical (e.g., SWB measure or wealth construct employed), then single-factor fixed effects models partition the total heterogeneity of the effect sizes into between-group heterogeneity (Q_{BET}; $df = p - 1$) and within-group heterogeneity (Q_w; $df = k - p$). This procedure essentially parallels the partitioning of total variance in an analysis of variance into $SS_{between}$ and SS_{within}. However, the Q statistics have chi-square distributions. Thus, the Q_{BET} tests the null hypothesis that the population effect sizes are equal between different levels of the categorical moderator; significance demonstrates that the categorical moderator explains significant variation in the effect sizes. A statistically significant Q_w demonstrates that significant variation in the effect sizes exists within a level of a categorical moderator. It should also be noted that when using a fixed effects model, the power to detect significant differences is a function of the number of weighted sample effect sizes, where each effect size is weighted by its corresponding inverse variance weight (which is strongly influenced by sample size). When the Q_{BET} statistic is significant, it is typical to use post hoc contrasts to determine which groups within the moderator demonstrated significantly stronger or weaker average effect sizes; again this procedure parallels post hoc t tests performed for significant omnibus F statistics. When the study characteristic is continuous (e.g., education of the sample, age of the sample, percentage of the male participants within a sample), then meta-regression is used to model the effect sizes (the dependent variable) as a function of the continuous predictors (where β_0 is the predicted effect size when the predictor equals 0, and β_1 is the unit change in the effect size that corresponds to a one-unit change in the predictor variable). Meta-regression procedures are best explained by forming the regression equation (see Footnote 9).

reported a single economic status–SWB correlation. The 111 independent samples surveyed a total of 131,935 respondents from 54 developing countries. Of the 54 countries, 20 were independently sampled more than once. The most frequently surveyed countries were South Africa ($k = 10$); China ($k = 9$); the Russian Federation ($k = 6$); and Hungary, India, Mexico, and Singapore ($k = 5$ for each). Across the 185 distinct economic status–SWB correlations, the two most commonly used SWB constructs were life satisfaction ($k = 74$) and happiness ($k = 32$), with 7 samples reporting both constructs. The typical economic status construct was household income ($k = 53$), followed by a sum of household assets ($k = 35$); 16 samples measured both of these economic status constructs. Finally, most economic status–SWB relations were measured without controlling for possible confounds ($k = 86$).

Addressing Threats to Validity

The results of this meta-analysis and the implications of these results are valid only if the included studies accurately represent the population of studies measuring economic status and SWB in developing countries. The major criticism facing any meta-analysis involves publication bias: Not all completed studies and, thus, not all data collected from samples surveyed have been published. Further, unpublished studies may be more likely than published studies to have found non-significant results ($p > .05$). Theoretically, if a meta-analysis included all unpublished studies, then the overall effect size would be reduced.

The first method used to test publication bias was a funnel plot. In a funnel plot, effect sizes are plotted on the horizontal axis, while the standard errors are plotted on the vertical axis in descending order. The funnel plot depicts whether the overall effect size computed from a given meta-analysis may be inflated due to a failure to include studies in which the null hypothesis was retained. The funnel plot demonstrated a rather symmetric distribution of effect sizes and argued that the overall economic status–SWB effect size was not a biased estimate of the population effect size. Computation of the Begg and Mazumdar (1994) rank correlation (Kendall's tau b) between the *r* effect size and the standard error further confirmed that sample size was not a predictor of the effect size (tau b = .058, $p = .364$).

The second set of tests to examine publication bias involved computing Orwin's fail-safe *N*. Orwin's fail-safe *N* calculates the number of additional studies needed to reduce the current effect size to a trivial magnitude (as determined by the researcher). Because one objective of the current meta-analysis is to determine whether the average economic status–SWB correlation is significantly stronger for developing country samples than for developed country samples, the trivial effect size needed to compute Orwin's fail-safe *N* was set at .12 (the expected average economic status–SWB effect size for developed country samples). Orwin's fail-safe *N* was found to be 72. Thus, only on the addition of 72 unpublished samples (more than the total number of studies identified for inclusion in the meta-analysis) with average *r* effect sizes of .00, would the average *r* effect size for developing economies match the effect size commonly reported in developed economies. Thus, the following meta-analysis provides a valid representation of the strength of the association between economic status and SWB in developing economies.

Meta-Analyzing the Samples

What is the overall economic status–SWB relation within developing countries? The mean weighted economic status–SWB *r* effect size across independent samples ($k = 111$) with fixed effects analysis was .196 (95% confidence interval [CI] = .191, .200). The mean unweighted *r* effect size across independent samples with random effects analysis was .183 (95% CI = .160, .206). Both *r* effect sizes were significantly different from zero ($Z = 77.74$ and 15.22, respectively). The unweighted median across independent samples was .161, with 1st and 3rd quartiles of .100 and .234, respectively.

Is the economic status–SWB relation stronger in developing economies? To establish a reasonable estimate of the economic status–SWB relation in developed countries, effect sizes from the following primary research articles were aggregated in Comprehensive Meta-Analysis 2.0: (a) Diener et al. (1993; $N = 8{,}753$ nationally representative adults from the United States); and (b) Headey et al. (2004; $N = 44{,}783$ nationally representative adults from Australia, Germany, and Britain). The average *r* effect size from these two studies was .122 weighted and .118 unweighted. The fixed effects homogeneity statistic, $Q_{\text{BET}}(1, k = 115) = 224.52$, $p < .001$, demonstrated that the economic status–SWB association for developing countries was significantly stronger than the association for these nationally representative developed country samples.

Determining moderators of the effect sizes in the meta-analysis. Prior to exploring potential moderators of the economic status–SWB relation, an omnibus homogeneity test demonstrated sufficient within-group variation across the 111 independent samples, $Q_{\text{w}}(110) = 2{,}359.94$, $p < .001$. Of the variables proposed as possible moderators of the economic status–SWB relation, two moderators (stage of economic development, and proportion of sample with a secondary education) were specifically identified to test the hypothesis that the *r* effect sizes will be largest for the poorest samples.

Moderator 1: Stage of economic development. We hypothesized that the average *r* effect size would be strongest for the least economically developed countries, as individuals within these countries may be most likely to be at or around the threshold of basic need fulfillment (Argyle, 1999; Easterlin, 1995; Graham, 2005). To test this hypothesis, we examined the average *r* effect size within the four categories of economic development[8] (i.e., low income, lower middle income, upper middle income, high income developing). An omnibus homogeneity test revealed significant differences in the average economic status–SWB *r* effect size across the four stages of economic development, $Q_{\text{BET}}(3, k = 111) = 410.96$, $p < .001$ (see Table 2). Single degree of freedom contrasts demonstrated that the economic status–SWB relation was strongest within the low-income developing country category ($r = .28$) and weakest within high-income developing country category ($r = .10$). Interestingly, the average *r* effect size for the high-income developing country category was not statistically different from the average *r* effect size computed for developed countries (with data from Diener et al., 1993, and Headey et al., 2004—see above).

[8] Studies are not evenly distributed across the four categories of economic development.

Table 2
Fixed Effects Analysis of Categorical Model for Economic Development Stage

Economic development stage	*k*	*N*	Mean *r* effect size	*SE*	95% CI for *r* LL	95% CI for *r* UL	Homogeneity within each group (Q_w)
Low income	21	24,658	$.28_a$	.006	.27	.29	797.41**
Lower middle income	34	32,969	$.16_c$	.005	.15	.16	355.59**
Upper middle income	45	65,553	$.19_b$	.004	.19	.20	756.52**
High-income developing	11	8,539	$.10_d$	.011	.08	.12	39.45**

Note. Between-group effect (Q_{BET}) for overall economic development stage was 410.96.** Significant *Q* statistic rejects null hypothesis of no variation between groups (Q_{BET}) or within specified group (Q_w). *k* = number of independent samples; *N* = number of participants within independent samples; CI = confidence interval; LL = lower limit; UL = upper limit. Correlations with different subscripts differed significantly at $p < .01$.
** $p < .01$.

Moderator 2: Sample education as a proxy for mean sample income. Following the theory of diminishing marginal utility, need theory suggests a negative effect of sample economic status on sample *r* effect size. Although mean sample income or wealth would have been the ideal moderator to test this hypothesis, few samples reported this statistic. Studies that did report a measure of central tendency for sample income or wealth employed a variety of constructs (e.g., personal income, household income, SES, number of assets, value of assets), and, thus, a common unit of measurement (i.e., dollars) was absent. Therefore, education, which was reported by more than 50% of the samples ($k = 72$), was chosen as a proxy for economic status in these analyses (Easterlin, 2003). Indeed, education has been shown to correlate positively with income and wealth at both the individual and national level (Gillis et al., 1996; Graham & Pettinato, 2001; Royo & Velazco, 2006; Stãnculescu et al., 2005; Tan, Tambyah, & Kau, 2006), and household income tends to be distributed closely along the lines of educational attainment within developing countries (Shinn, 1986). Klasen (2000) demonstrated that poverty rate, poverty gap, and share of poverty gap all decreased with education. Further, education is a positive predictor of income after controlling for several covariates (Graham, Eggers, & Sukhtankar, 2004).

A meta-regression confirmed the moderating effect of education (percentage of sample with a secondary education) on the economic status–SWB relation (see Table 3). As sample education (and likely sample income and wealth) increased, the strength of these effect sizes decreased.[9] To determine whether the observed linear trend between the economic status–SWB *r* effect size and education was constant across all levels of education, samples were clustered into four groups based on the percentage of the sample that reported a secondary education. An omnibus homogeneity test revealed significant differences in the *r* effect sizes among the four education groups, $Q_{BET}(3, k = 72) = 962.43$, $p < .001$ (see Table 4). Single degree of freedom contrasts demonstrated that the average *r* effect size for the least-educated group (less than 25% reporting a secondary education) was significantly stronger than the *r* effect sizes calculated for the other three education groups. No other statistical differences were observed. These results suggest the possibility of a convex relationship between education and the economic status–SWB effect size among developing country samples. To test for a convex relation, a post hoc contrast was performed with contrast weights of 8.5, 0.5, –3.5, and –5.5, respectively. The result of this contrast was highly significant, $\chi^2(1, N = 131, 719) = 792.19$, $p < .001$, indicating that the average association between economic status and SWB was strongest for the least-educated (and likely the poorest) developing country samples and that the average *r* effect size decreased at a diminishing rate.

Because both the economic stage of development and sample education moderated the economic status–SWB relation, we examined the extent to which economic development status affected the average economic status–SWB effect size, controlling for education. Samples were sorted into two education groups based on whether 50% or more of the sample had a secondary education. Within each education group, average *r* effect sizes were computed separately for each stage of economic development. However, because many of the samples in the least-educated group ($k = 24$)

[9] The most straightforward way to interpret the meta-regression coefficients is to write out the regression equation. The basic equation would be as follows:

$$\hat{y} = \beta_0 + \beta_1(X1)$$

where $\hat{y}$ is the predicted effect size; β_0 is the intercept (when β_1 equals 0); β_1 is the unstandardized slope (the change in the predicted effect size with a unit change in the predictor); and X1 is the quantity of the predictor. For example, if we consider the first significant slope for education ($\beta_1 = -.327$), we can use the meta-regression coefficients to predict the effect size between income and SWB for a hypothetical sample with a given proportion of educated respondents (where proportion of sample with a secondary education is the predictor). In this case, the predictor runs from 0.00 (a sample devoid of participants with a secondary education) to 1.00 (a sample where all participants have at least a secondary education).

Thus, the meta-regression equation for this example (see Table 3) would be

$$\hat{y}(\text{predicted effect size}) = .378 - .327(X1)$$

For example, if the proportion is 0.00 (none in the sample with a secondary education), the predicted effect size between economic status and SWB would be .378. If the proportion is 0.50 (half of the sample with a secondary education), the predicted effect size would be .215. If the proportion is 1.00 (all in the sample with a secondary education), the predicted effect size is .051. Thus, we observe that as the participants in the sample report higher levels of educational attainment, the strength of the economic status–SWB effect size decreases.

Table 3
Meta-Regression With Effect Size Regressed Onto Percent of Sample With Secondary Education

Parameter	Estimate	*SE*	*z* value	95% CI for β	
				LL	UL
β_0	.378	.008	49.16	.363	.393
β_1	−.327	.012	−26.34	−.351	−.303
	$Q_{\text{Model}}(1, k = 72) = 693.90, p < .001$				

Note. *z* value tests the null hypothesis that the parameter is zero in the population. The 39 samples that did not report descriptive statistics concerning sample education were not significantly different, Q_{BET} (1, k = 111) = 2.83, $p > .05$, from the 72 samples that did report education. CI = confidence interval; LL = lower limit; UL = upper limit.

were from low-income developing economies, we compared the low-income group with the lower middle and upper middle income groups combined. The average *r* effect size for these least-educated and low-income developing economy samples was quite strong (*r* = .381; 95% CI = .366, .395), while the average *r* effect size for these least-educated and middle income developing economy samples was strong but significantly weaker (*r* = .239; 95% CI = .225, .253). Interestingly, within the more-educated group (*k* = 48) average *r* effect sizes were not markedly different between low-income developing economies (*r* = .100; 95% CI = .072, .125), middle income developing economies (*r* = .146; 95% CI = .137, .154), and high-income developing economies (*r* = .101; 95% CI = .081, .122). Further, the average *r* effect sizes for these more-educated groups varied little from the typical effect sizes observed among developed country samples (*r* = .06–.15). Thus, it appears that economic status is most strongly associated with SWB when educational attainment is rare (e.g., samples are poor) and individuals live in low-income developing countries.

Moderator 3: SWB construct. The construct used to measure sample SWB was determined to be a moderator of the economic status–SWB relation, $Q_{\text{BET}}(4, k = 110) = 123.48, p < .001$. For independent samples, the SWB constructs having the strongest relations with economic status were quality of life, domain satisfaction, and life satisfaction (see Table 5). Post hoc contrasts demonstrated no statistical differences among the average *r* effect sizes for these three SWB constructs. However, the average economic status–SWB relation for samples measured with a happiness construct was significantly weaker than relations computed for other SWB constructs. Even when the assumption of independence was relaxed, the average *r* effect size for the 32 samples measured on happiness (*r* = .132; 95% CI = .120, .143) remained weaker than for samples reporting quality of life (*r* = .251; 95% CI = .224, .277), life satisfaction (*r* = .214; 95% CI = .208, .220), or domain satisfaction (*r* = .161; 95% CI = .144, .179).

Moderator 4: Economic status construct. The construct used to measure sample economic status was also found to be a statistically significant moderator of the economic status–SWB relation, $Q_{\text{BET}}(6, k = 111) = 773.66, p < .001$. We began by grouping economic status variables together into two groups, based on whether wealth (e.g., stock variables) or income (e.g., flow variables) was measured. We found that the average effect size was stronger when wealth variables were assessed (*r* = .267; 95% CI = .257, .278) than when income variables were measured (*r* = .165; 95% CI = .159, .172). A closer examination demonstrated that these differences were due to two specific economic status measures. As demonstrated in Table 5, post hoc contrasts using independent samples showed that (a) the mean SES–SWB relation was statistically stronger than all other income–SWB and wealth–SWB associations and (b) the mean personal income–SWB relation was statistically weaker than all other associations. When the assumption of independence was relaxed, the average *r* effect size for the 21 samples that measured SES (*r* = .316; 95% CI = .307, .325) remained larger than the average effect sizes computed for all other economic status constructs, and the average *r* effect size for samples that reported personal income remained smallest (*r* = .071; 95% CI = .053, .089).

Moderator 5: Percent male respondents. A fixed effects homogeneity statistic was computed to determine whether there was a significant difference in the average *r* effect size between samples that reported gender and those that did not. Samples that reported gender were found to have a significantly weaker average *r* effect size (*r* = .179, *k* = 82) than samples that did not report gender (*r* = .220, *k* = 29), $Q_{\text{BET}}(1, k = 111) = 66.40, p < .001$. Because samples that reported gender data are not fully representative of all samples in the data set, the following results should be interpreted with some caution.

To test whether gender moderated the economic status–SWB relation, the *r* effect size was meta-regressed onto the proportion of male respondents in each sample. As shown in Table 6, sample gender significantly moderated the economic status–SWB relation.

Table 4
Fixed Effects Analysis of Categorical Model for Education

Percent with secondary education	*k*	*N*	Mean *r* effect size	*SE*	95% CI for *r*		Homogeneity within each group (Q_w)
					LL	UL	
0%–25%	10	21,212	$.36_a$	.007	.35	.37	283.96**
26%–50%	14	9,725	$.16_b$	.010	.14	.18	81.81*
51%–75%	33	23,770	$.14_b$	.005	.13	.15	296.85**
76%–100%	15	23,108	$.13_b$	.006	.12	.15	74.27**

Note. Between-group effect (Q_{BET}) for percent with secondary education was 962.43.** Significant *Q* statistic rejects null hypothesis of no variation either between groups (Q_{BET}) or within specified group (Q_{wi}). *k* = number of independent samples; *N* = the number of participants within the independent samples; CI = confidence interval; LL = lower limit; UL = upper limit. Correlations with different subscripts differed significantly at $p < .01$.
*$p < .05$. **$p < .01$.

Table 5
Categorical Moderators of the Economic Status–SWB Relation

Moderator	Between-group effect (Q_{BET})	k	N	Mean r effect size	SE	95% CI for r LL	95% CI for r UL	Homogeneity within each group (Q_w)
SWB construct[a]	115.02**							
Quality of life		6	3,559	$.23_a$	.017	.21	.26	77.45*
Domain satisfaction		6	3,643	$.22_{a,b}$	.017	.18	.25	123.28**
Life satisfaction		65	90,462	$.21_a$	.003	.21	.22	1,504.06**
Happiness		13	11,073	$.11_c$	.010	.09	.13	67.74**
Combined		20	19,358	$.18_b$	.005	.17	.19	537.02**
Economic status measure	773.66**							
SES		15	20,100	$.35_a$	.007	.34	.36	402.36**
Household income		38	48,711	$.18_c$	.004	.17	.19	547.28**
Per capita income		6	6,478	$.18_c$	.012	.15	.20	36.75**
Household index		19	12,364	$.14_d$	.009	.12	.16	108.76**
Household expenditures		3	5,669	$.12_d$	.016	.08	.15	26.85**
Personal income		11	8,368	$.07_e$	.010	.05	.09	33.14**
Combined		19	30,029	$.20_b$	.005	.19	.21	431.13**

Note. Significant Q statistic rejects null hypothesis of no variation either between groups (Q_{BET}) or within specified group (Q_w). SWB = subjective well-being; k = number of independent samples; N = the number of participants within the independent samples; CI = confidence interval; LL = lower limit; UL = upper limit. Correlations with different subscripts differed significantly at $p < .01$.
[a] Negative affect was dropped from these analyses because it occurred in only one independent sample.
*$p < .05$. **$p < .01$.

An increase in the proportion of male respondents was associated with a large increase in the strength of the economic status–SWB relation. Because the gender variable was fixed between 0.00 (all female respondents) and 1.00 (all male respondents), the meta-regression could be used to predict the effect size for these two extreme cases. For a hypothetical sample with all female respondents, the correlation between economic status and SWB was predicted to be relatively weak ($r = .06$); the relation for a hypothetically all-male sample was predicted to be much stronger ($r = .31$).

Exploring Methodological Choices to Explain Heterogeneity in Effect Sizes

Because methodological choices (geographic location of the study, sampling technique used, and statistical procedure selected) could have affected the average correlation between economic status and SWB, the next three sections examine how study design may have influenced the aggregated effect sizes.

Table 6
Meta-Regression Analyses With Effect Size Regressed Onto Proportion of Men in Sample

Parameter	Estimate	SE	z value	95% CI for β LL	95% CI for β UL
β_0	.063	.012	5.30	.040	.087
β_1	.247	.025	10.19	.199	.294
	$Q_{Model}(1, k = 82) = 103.97, p$ .001				

Note. z value tests the null hypothesis that the parameter is zero in the population. There were 29 samples that did not report a gender breakdown; these studies had a stronger average r effect size (.220) than the 82 samples that did report gender, Q_{BET} (1, $k = 111$) = 66.40, $p < .001$. CI = confidence interval; LL = lower limit; UL = upper limit.

Region of the world. Region of the world was found to be a significant moderator of the economic status–SWB effect size, $Q_{BET}(5, k = 111) = 338.08$, $p < .001$. As demonstrated in Table 7, samples from Sub-Saharan Africa, the Middle East and North Africa, and South Asia showed the strongest economic status–SWB relations, while samples from Europe and Central Asia and from East Asia and the Pacific showed the weakest average r effect sizes.

Sampling technique. The moderating effect of sampling technique on the economic status–SWB relation was found to be statistically significant, $Q_{BET}(2, k = 109) = 93.305$, $p < .001$. As shown in Table 7, nationally representative samples demonstrated significantly stronger economic status–SWB relations than were found for rural/village or urban/city areas. No statistical difference was found between the average r effect sizes for rural/village and urban/city samples.

Because one criticism of a fixed effects meta-analysis concerns the generalizability of findings, it was determined that results from a reanalysis of the data using only the 57% of samples that were nationally representative may most accurately reflect the economic status–SWB relation in developing countries. Compared with results from the larger meta-analysis, effect sizes for nationally representative samples were significantly stronger within low-income developing economies ($r = .384$) and high-income developing economies ($r = .148$).

Statistical procedure. The research questions posed by each study and the analytical approaches used to address those questions led to variation in the reported effect sizes. For example, studies concerned only with assessing the zero-order relation between economic status and SWB within a sample (e.g., using correlation, chi square, analysis of variance) demonstrated a stronger average r effect size ($r = .213$; $k = 86$; 95% CI = .208, .218) than did studies concerned with assessing the strength of the partial economic status–SWB relation ($pr = .134$; $k = 25$; 95% CI =

Table 7
Methodological Moderators of the Economic Status–SWB Relation

Moderator	Between-group effect (Q_{BET})	k	N	Mean r effect size	SE	95% CI for r LL	95% CI for r UL	Homogeneity within each group (Q_w)
Region of the world	338.08**							
Sub-Saharan Africa		11	18,884	$.26_a$	.007	.25	.28	416.01**
South Asia		9	10,937	$.26_a$	.008	.24	.28	187.09**
Middle East and North Africa		6	3,699	$.24_{a,b}$	.016	.21	.27	256.61**
Latin America and Caribbean		25	20,399	$.23_b$	.007	.22	.24	470.86**
Europe and Central Asia		30	52,106	$.17_c$	.004	.16	.18	312.73**
East Asia and Pacific		30	17,966	$.15_d$	.007	.14	.16	378.59**
Sampling technique	93.305**							
Nationally representative		63	98,817	$.21_a$	.003	.20	.22	1,796.08**
Urban/city		39	23,949	$.16_b$	.005	.15	.17	427.46**
Rural/village		8	8,084	$.17_b$	.012	.15	.19	35.93**

Note. Significant Q statistic rejects null hypothesis of no variation either between groups (Q_{BET}) or within specified group (Q_w). SWB = subjective well-being; k = number of independent samples; N = the number of participants within the independent samples; CI = confidence interval; LL = lower limit; UL = upper limit. Correlations with different subscripts differed significantly at $p < .01$.
** $p < .01$.

.123, .144). Partial effect sizes were estimated after controlling for other covariates (as many as 10 additional demographic, economic, political, geographic, cultural, and psychological variables) by using ordered-probit models or OLS regression. Given these differences, the major hypotheses were retested by examining the average r effect sizes for those studies that reported partial r effect sizes. For these studies, the economic status–SWB relation among low-income developing economies (pr = .230) was larger than among middle income developing economies (pr = .137) and high-income developing economies (pr = .065). Also, samples with the fewest respondents (less than 25%) reporting secondary education showed the strongest partial relation between income and SWB (pr = .183).

Testing the Robustness of the Meta-Analysis—A Replication Using the World Values Survey

To test the robustness of these findings, we performed a replication meta-analysis with three waves of data from the World Values Survey (WVS) database[10] (The European Values Study Foundation and World Values Survey Association, 2006).

Differences between the meta-analysis and the WVS. The major advantage of the WVS is its standardized methodology. Although the inclusion of many different studies from various researchers and journals allowed for a diversity of economic status–SWB associations and moderators to be examined, the included articles also represent a rather incongruous collection of operational definitions for both economic status and SWB. Variables in the WVS are harmonized among all countries examined and, thus, allow for a cleaner aggregation of effect sizes. For example, participants in the 1990, 1995, and 2000 waves of the WVS were each asked a question about their current level of happiness ("Taking all things together, would you say you are [1] *very happy,* [2] *quite happy,* [3] *not very happy,* [4] *not at all happy*"), life satisfaction ("All things considered, how satisfied are you with your life as a whole these days: [1] *dissatisfied* to [10] *satisfied*"), and a country-specific question regarding household income. By virtue of its consistency across samples, the WVS data set allows for tests of replication, for both the average economic status–SWB effect size and for the moderator analyses conducted in the initial meta-analysis, while minimizing any sample-level confounds related to methodology.

Description of included WVS samples. We generated separate country-level correlations between household income and happiness, and household income and life satisfaction for all developing country samples surveyed during the 1990, 1995, and 2000 waves of the WVS. We coded each sample for the potential moderators examined in the initial meta-analysis (e.g., economic stage of development, education,[11] gender composition, region of the

[10] We are appreciative of an anonymous reviewer who suggested using data from the WVS to corroborate the findings from the meta-analysis. The WVS is a longitudinal data collection project investigating cultural and political change among diverse societies around the world. The project is managed by an international network of university researchers and social scientists. Thus far, there have been five survey waves: 1981, 1990, 1995, 2000, and 2005. (Only data from the first four waves were available from the WVS Web site as of June 2007). To date, over 80 independent countries representing nearly 85% of the world's population have been surveyed at least once across the five waves. For each country, the survey is administered via oral interviews to nationally representative samples of approximately 1,000 respondents. In addition to interviewing respondents about household income, happiness, and life satisfaction, the questions in the survey involve assessments and opinions regarding a number of topics: personal values; personal health; volunteer activities; interest in politics; feelings toward out-groups; locus of control; attitudes toward institutions and organizations; opinions about poverty and democracy; religious affiliation and participation; voting attitudes and behavior; and demographics (age, education, marital status, children, occupation, self-assessed SES, size of town of residence, ethnicity). Additional information and WVS data sets can be found at www.worldvaluessurvey.org

[11] For the WVS data, the education variable used was the percentage of the sample with a college degree, or equivalent. Although this is different from the education variable used in the primary meta-analysis (percentage of sample with secondary education, or equivalent), it was the most consistently reported education category with a clear cutoff.

world). Only those samples measured on all of these potential moderators were included in this replication effort.

Across the three waves of data, 74 independent samples representing a total of 102,224 participants from 54 developing countries (some countries were independently surveyed at multiple time points) were identified as meeting our established inclusion criteria. Because all 74 samples measured both happiness and life satisfaction, 74 distinct effect sizes were computed between household income and happiness, and 74 separate effect sizes were computed between household income and life satisfaction.

Meta-analyzing the WVS samples. The mean weighted household income–SWB r effect size for the WVS data with fixed effects analysis was .195 (95% CI = .189, .201; $p < .001$). The mean unweighted r effect size was only slightly stronger ($r = .197$; 95% CI = .176, .218; $p < .001$). The unweighted median across independent samples was .203, with 1st and 3rd quartiles of .134 and .251, respectively. The striking similarity of these aggregated WVS effect sizes to the effect sizes calculated within the initial meta-analysis (see Table 8) validates our estimate of $r = .20$ as the overall correlation coefficient between household income and SWB in developing economies.

Replicating the moderators. For the purpose of comparison with the aggregate effect size from developing countries, we meta-analytically computed the average household income–SWB relation for the developed countries included in the 1990, 1995, and 2000 waves of the WVS. In all, 68,375 respondents from 24 economically developed countries reported their current level of happiness, life satisfaction, and household income. The mean weighted household income–SWB r effect size across independent samples ($k = 53$) with fixed effects analysis was .132 (95% CI = .124, .140). The mean unweighted r effect size was only slightly larger ($r = .137$; 95% CI = .113, .161). These effect sizes are similar to the average effect sizes ($r = .122$ weighted; $r = .118$ unweighted) estimated with the correlations from both Diener et al. (1993) and Headey et al. (2004). Further, the fixed effects homogeneity statistic, $Q_{BET}(1, k = 127) = 156.56$, $p < .001$, demonstrated that the household income–SWB association for developing economies in the WVS was significantly stronger than the association from developed countries in the WVS.

Also consistent with results from the initial meta-analysis (see Table 8), the percentage of each WVS sample with a college education (a proxy for income) was negatively associated with the household income–SWB relation ($\beta_1 = -.156$, $Z = 3.91$). Thus, those WVS samples with the least education reported stronger relations between household income and SWB. Given that each WVS sample provided a separate household income–SWB correlation for happiness and life satisfaction, it was possible to test the moderating effects of the SWB construct more directly by measuring the difference between these two effect sizes. Consistent with the initial meta-analysis, the WVS correlation between household income and life satisfaction ($r = .223$) was stronger than the WVS correlation between household income and happiness ($r = .167$). We were unable to replicate the finding that the association between household income and SWB was moderated by gender, perhaps because there was too little variance in the gender variable; most samples had near-equal numbers of male and female participants. Finally, on examining the average WVS effect size within different regions of the world, the average effect size between household income and SWB was strongest in Sub-Saharan Africa ($r = .277$) and weakest in Latin America and the Caribbean ($r = .120$).

Interpretation of Correlational Results

To accurately and effectively interpret aggregate r effect sizes, meta-analysts advocate the use of a binomial effect size display (BESD; see Rosenthal, 1991 & 1994, for a full explanation of the BESD procedure and rationale). We used the BESD to interpret the average economic status–SWB effect size for low-income developing country samples with less than 25% of respondents reporting secondary education ($r = .38$). We presumed that these samples would be most likely to represent individuals or households struggling to meet basic needs. The BESD predicted that for a hypothetical group of individuals from a low education and low-income developing country sample, 69% of those in the "high economic status" group would be likely to report comparatively high SWB, whereas only 31% of individuals within the "low economic status" group would be likely to report comparatively high SWB. Another interpretative tool to understand the strength of correlations has been to report the shared variance (r^2) between the two variables. In this case, the shared variance in the economic status–SWB relation for those in the lowest education and least economically

Table 8
Comparison Between Meta-Analysis and World Values Survey (WVS) Effect Sizes

Statistic	Meta-analysis	WVS
Sample characteristic		
Number of independent samples	111	74
Number of respondents	131,935	102,224
Number of countries included	56	54
Descriptive statistic		
Weighted mean r effect size	.196	.195
Unweighted mean r effect size	.183	.197
Median r effect size	.161	.203
1st and 3rd quartile r effect size	.100 and .234	.134 and .251
Moderator of income–subjective well-being		
Mean household income–life satisfaction relation	.214	.223
Mean household income–happiness relation	.132	.167
Mean household income–subjective well-being in Sub-Saharan Africa	.263	.277
Standardized slope between % sample with education and effect sized from meta-regression	$\beta_1 = -.327$	$\beta_1 = -.156$

developed group (14.4%) is much larger than the typical shared variance in developed economies (1%–2%).

Discussion

In recent years, a growing momentum to measure economic status and SWB among disparate samples has spawned a disciplinarily diverse collection of SWB research within developing economies. With the use of 56 studies containing a total of 111 independent samples from 54 developing countries, the aims of this meta-analysis were to conduct a quantitative and statistically powerful assessment of the average economic status–SWB relation for developing country samples; to determine whether this effect size is statistically stronger than the one typically observed in developed economies; and to explore potential moderators of the economic status–SWB relation within developing countries.

Results from both the primary meta-analysis and the replication synthesis with the WVS data demonstrate that the overall economic status–SWB relation within developing economies is approximately $r = .20$ and significantly stronger than the average relation estimated for developed country samples ($r = .13$). The association is strongest for low-income developing economy samples ($r = .28$) and weakest for high-income developing economy samples ($r = .10$). Meta-regressions in both the initial meta-analysis and with the WVS data demonstrated that the economic status–SWB relation declined with sample-level increases in educational attainment (a proxy for sample wealth or income), such that the effect size was strongest for the least-educated (and most likely poorest) samples. In terms of moderators, the economic status–SWB effect size was found to be moderated by the constructs used to measure SWB and economic status, as well as by the gender distribution of the sample, with the relation being stronger for predominately male samples.

Is Need Theory a Plausible Explanation for These Results?

The main findings of this study relating to the statistical differences in average economic status–SWB relations observed in developing versus developed country samples as well as low-income developing versus high-income developing samples are consistent with past correlational differences that SWB researchers have identified as supporting need theory. With respect to results of the meta-regression models, post hoc group comparisons revealed a curvilinear trend by which the moderating effect of education on the economic status–SWB relation diminished as education increased. This finding mirrors the now-familiar concave pattern between economic status and SWB, which corresponds to the theory of diminishing marginal utility and has been presented as one of the strongest arguments supporting the existence of a "threshold" of basic needs, assumed by both need theory and relative standards theory (e.g., Cummins, 2000; Diener & Diener, 1995; Diener, Diener, & Diener, 1995; Schyns, 2002). Finally, our examination of the subset of low-income developing country samples that were also low on educational attainment ($k = 14$) revealed an effect size of $r = .38$, implying that economic status, as a predictor of SWB, is strongest for the poorest of the poor. These results appear consistent with the possibility that individuals within highly impoverished samples were at or around the threshold of physiological need fulfillment, with those individuals above the threshold reporting significantly higher SWB than those below it.

Other Plausible Explanations for the Results

Although these results confirm correlational support for a basic needs threshold, they are unable to verify a causal path from economic status to SWB for developing country samples. For example, there is the possibility that causation runs in the opposite direction, with higher SWB leading to higher economic status (see Frey & Stutzer, 2000; Lyubomirsky, King, & Diener, 2005), or that the economic status–SWB relation is spurious, being affected by a third unmeasured variable (e.g., family support; see Lever, 2004) that positively influences both economic status and SWB. Even though our analysis of the 25 studies that controlled for many possible confounds (e.g., age, gender, education, marital status, social support, health status) produced a positive and significant average partial *r* effect size, this result supports only the possibility of a direct causal relationship. As noted by Cummins (2000), "since it is obvious that money, of itself, can exert no direct influence on SWB, the precise identification of the sources of unique variance contributed by such intervening operational variables as hunger, perceived health, etc., is most uncertain" (p. 135). Therefore, because few (if any) studies to date have tested mediation models by using objective measures of need satisfaction over time, we feel it is useful to conjecture other plausible explanations for the statistical findings of this meta-analysis that may be tested in future research.

Could the findings be due to methodological artifacts? To investigate whether methodological artifacts (e.g., restriction of range, differences in construct reliability) may have influenced the effect size differences between wealthier and poorer samples, we revisited the WVS data, which included countries in various stages of economic development and which measured income, happiness, and life satisfaction by using a standardized methodology. We tested for the presence of range restriction by computing standard deviations of the happiness, life satisfaction, and income variables for both developing country samples as a whole and for developed country samples as a whole. Standard deviations of the happiness and life satisfaction measures were slightly smaller for the developed countries compared with those for the developing countries (respectively, $SD = 2.05$ vs. $SD = 2.66$ for life satisfaction; and, respectively, $SD = .69$ vs. $SD = .78$ for happiness). The standard deviation for income was slightly larger among the developed country samples ($SD = 2.64$) than among the developing country samples ($SD = 2.38$). Because the WVS includes only single-item measures of happiness and life satisfaction, the best estimate of reliability we can provide is the correlation between happiness and life satisfaction. This correlation was slightly stronger for the developed country samples ($r = .56$) than for the developing country samples ($r = .46$).

These results do not seem to support the argument that differences in the economic status–SWB relation are due solely to

methodological artifacts.[12] Instead, it may be likely that methodological artifacts (specifically construct reliability) are attenuating the economic status–SWB relation among developing country samples and that this relation could actually be stronger than statistically observed (see Howell et al., 2006, for a demonstration of greater construct attenuation in developing countries). This argument was articulated by Biswas-Diener and colleagues (2005) whose study involving Inughuit, Amish, and Maasai samples demonstrated lower internal consistency estimates (Cronbach's alphas) for most measures than are typically found among samples in Western societies. The authors conclude that "the consistency of the findings is even more impressive, because of the random error introduced" (p. 222).

In the current meta-analysis, a comparison of urban and rural samples reveals statistically equal economic status–SWB effect sizes, yet the average SWB construct reliability is higher for urban samples ($\alpha = .82$) than for rural samples ($\alpha = .67$). This observation implies that measurement error in the SWB construct attenuated the economic status–SWB relation for rural samples, which may have been due to a lack of experience with surveys or unfamiliarity with self-assessment (e.g., Biswas-Diener et al., 2005). Howell et al. (2006) reported that when low reliability resulting from measurement error was corrected, the wealth–SWB relation for a sample of rural indigenous Malaysians increased from $r = .23$ to $r = .43$. We suggest that future research report construct reliability statistics in order to address this methodological attenuation issue more directly.

Satisfaction of psychological needs. It is presumed that within developing countries the absence of regular physical need fulfillment results in lower SWB (e.g., Diener, Suh, Smith, & Shao, 1995). However, income and wealth may also be more strongly related to SWB among poor samples if additional income and assets are also able to satisfy individuals' psychological needs. Lever and colleagues (2005) suggested that due to the significant relationships observed for certain psychological variables (e.g., coping strategies, locus of control, achievement motivation, self-esteem, depression) with both SWB and purchasing and consumption levels, "it can be hypothesized that such variables modulate or modify the relationship between these two constructs" (p. 378). Self-determination theory (see Ryan & Deci, 2000) has demonstrated that individuals are happiest when the three ostensibly universal psychological needs of autonomy, competence, and relatedness are met (Reis, Sheldon, Gable, Roscoe, & Ryan, 2000). Therefore, if poverty interferes with individuals' ability to (a) pursue competency-producing daily behaviors (Brinkerhoff et al., 1997), (b) work toward strengthening personal relationships (Biswas-Diener & Diener, 2001), or (c) engage in activities of intrinsic value, then perhaps the stronger economic status–SWB relation within developing economies is mediated by the role of income and assets in overcoming the barriers imposed by poverty that hinder individuals from attaining psychological need fulfillment (Diener et al., 1993). This said, much of the research to date that has examined psychological need fulfillment across samples with varying economic status has found that higher-level need fulfillment is perceived to be more important and bears more strongly on SWB in wealthier samples and nations than in poorer ones (Lever et al., 2005; Li et al., 1998; Oishi et al., 1999). Still, we suggest that determining whether or not psychological need fulfillment may improve SWB among impoverished samples before, or in conjunction with, the satisfaction of physical needs should be a continuing focus of future research.

The consumption of goods and leisure. Another possible explanation for the larger economic status–SWB association observed within developing countries extends the hypothesis of the need fulfillment threshold beyond its focus on basic physiological needs to include the consumption of non-essential goods and leisure. Many of the modern comforts and conveniences standard to life in developed economies are rarely present in very poor developing country households (e.g., mattresses, indoor toilets, gas stoves, refrigerators, motorized vehicles, automatic washing machines and dishwashers, heating and air conditioning; Biswas-Diener & Diener, 2001; Howell et al., 2006). In some instances, the purchase of such goods may facilitate certain chores, eliminate arduous tasks, or increase time available for leisure. Thus, beyond meeting basic physiological needs, it is possible that the use of income or assets to purchase goods that make life more comfortable, convenient, restful, or enjoyable may, in turn, increase SWB (Brinkerhoff et al., 1997; Diener et al., 1993; Kahneman et al., 2004; Kousha & Mohseni, 1997; Shinn, 1986).

Because the consumption of goods and leisure adheres to the law of diminishing marginal utility, the consumption-related gains in SWB are assumed to decrease progressively as total consumption continues to increase. Thus, it would be presumed that such consumption would provide the greatest increase in SWB to those initially consuming very little and then show a weaker relation with SWB for high-consumption samples. Panel analyses with longitudinal data would need to be conducted in order to test whether non-essential consumption of modern comforts and conveniences significantly increases SWB among poor samples. Also of interest would be whether this enhanced level of SWB among poor samples can be sustained across time or whether adaptation eventually occurs.

Influential Moderators and Implications for Future Research

In addition to identifying the variables that may mediate the economic status–SWB relation amidst poverty, it is also important to disentangle any potential moderators of the relation. The current meta-analysis tested several sample-level moderators. All moderators were found to be statistically significant. The following sections discuss those moderators that are most relevant to the methodological designs of future research efforts investigating the economic status–SWB relation within developing countries.

Should researchers be concerned with the constructs used to measure SWB? Both the primary meta-analysis as well as the replication study with the WVS data demonstrated the influence of the SWB construct on the economic status–SWB relation. Specifically, the economic status–happiness relation was found to be significantly weaker than relations computed with more cognitive,

[12] In order for this to have been the case, (a) we would have needed to find that developed country samples had smaller standard deviations than those of developing country samples on all income and SWB items, and (b) we would have needed to find that the happiness–life satisfaction correlation was weaker (e.g., demonstrated lower reliability) in the developed countries than in the developing countries. Neither of these criteria was met by the results of our analyses.

global assessments of SWB (e.g., life satisfaction, domain satisfaction, quality of life). The results of the current meta-analysis support past research arguments that current life circumstances exert less influence on affective experiences than they do on life satisfaction judgments (Kahneman et al., 2004). This weaker association with happiness may result from happiness constructs stimulating reflections on typical emotional levels rather than on life in general (Diener, 1984; Diener et al., 1999). It is also possible that because the term *happiness* can be interpreted differently in different non-English-speaking languages (e.g., Fuentes & Rojas, 2001; Oishi et al., 1999; Saris & Andreenkova, 2001; Zavisca & Hout, 2005), happiness constructs may contain inherently greater measurement error than cognitive SWB constructs, unintentionally leading to attenuated economic status–happiness correlations. Based on these concerns, future SWB research among poor developing country samples should benefit from separate measurements of both happiness and life satisfaction.

Should researchers be concerned with the constructs used to measure income? Although there has been some concern over the interchangeability of SWB constructs, few researchers have investigated dissimilarities in how different income and wealth constructs relate to SWB. Of the 111 independent samples included in the meta-analysis, only 19 (17.1%) estimated economic status with more than a single measure of income or wealth, and only 8 samples reported intercorrelations among the different economic status constructs. These intercorrelations were, on average, weaker than the correlations reported among different SWB constructs (see Table 9). Average economic status–SWB effect sizes were observed to be statistically similar across most income and wealth constructs; the exceptions were SES and personal income.

Economic status constructs that involved measures of SES demonstrated the strongest relations with SWB. Most SES measures aggregated several wealth-related variables (e.g., living conditions, amenities, possessions, savings, housing quality) in addition to, or in lieu of, measuring actual income (e.g., Rojas, 2005), which may have avoided some of the biases inherent to more direct measures of income for poor households (e.g., irregularity, unpredictability, unintentional omissions; see Graham, 2005; Howell et al., 2006; Klasen, 1997; Smith, 2003; Stãnculescu et al., 2005; Tiliouine et al., 2006). Because SES constructs typically contained multiple indicators, which likely endowed them with stronger psychometric properties (internal consistency), they were less likely to attenuate the economic status–SWB relation. Finally, if it is the case that cognitive evaluations of SWB involve respondents reflecting on tangible attributes of their lives (e.g., living conditions, possessions, housing quality), then we might expect SWB to be more strongly correlated with actual measurements of SES than with estimates of household or personal income.

The weakest average economic status–SWB relation was observed for the 12 independent samples that measured personal income. Of these samples, 10 reported *r* effect sizes between .02 and .11. A comparison of results from the current study with those from the meta-analysis by Cummins (2000) reveals variability in the nature of the economic status–SWB relation among impoverished samples around the world, specifically between developed and developing countries. Cummins (2000) found a rather strong relation between personal income and SWB for low-income developed country samples ($r = .257$, $k = 9$). Rojas (2005) argued that personal income may be a poor indicator of actual economic status for developing country samples because it overlooks the typically communal nature of family life, in which income and

Table 9
Intercorrelations Among SWB Constructs and Among Income Measures

Sample	SWB constructs	*R*	Measures of economic status	*r*
Biswas-Diener & Diener (2001)			HQ and PI	.23
Graham & Pettinato (2001)			DP and SES[a]	.50
Headey et al. (2004)			NW and HHI	.26
			NW and C	.26
Howell et al. (2006)			HS and HAV	.24
Kim (1998)	H and DS	.44	PI and HHI	.44
			HAV and HHI	.23
			PI and HAV	.03
Lee et al. (1982)	H and LS	.35		
Møller & Saris (2001)	H and SWB	.59	HHI and AW	–.09
Rojas (2004)			HHI and DP	.15
			AW and HHI	.22
			DP and AW	.34
Shin et al. (1983)	Average of intercorrelations between 7 constructs	.60		
Sirgy et al. (1995)	LS and SWB (China)	.26		
	LS and SWB (Turkey)	.46		
Suhail & Chaudhry (2004)	H and LS	.56		
Tiliouine et al. (2006)	PWI and LS	.72		
Winter et al. (1999)			PCI and HQ	.33
Zavisca & Hout (2005)			HHI and DP	.32
Unweighted sample mean		.52		.25

Note. For subjective well-being (SWB) constructs: H = happiness; DS = domain satisfaction; LS = life satisfaction; PWI = Personal Well-Being Index. For economic status measures: HQ = housing quality; PI = personal income; DP = durable possessions; SES = socioeconomic status; HHI = household income; NW = net worth; C = consumption; HS = household savings; HAV = household assets value; AW = access to water; PCI = per capita income.
[a] Based on interviewer assessment.

wealth may be pooled and shared among multiple members of the household, and sometimes even among non-household members. Such household structures may result in individual consumption levels that are above or below what an individual's personal income might predict and, thus, diminish the degree to which personal income is correlated with SWB. Several other developing country studies have reported that while household income and asset value are significantly correlated with SWB, the correlation between SWB and personal income is not significant (Kim, 1998; Stãnculescu et al., 2005). These findings suggest the need for future research in developing countries to improve on measures of income and wealth by including multiple indicators of economic status. Where estimates of actual income are desired, it is important to acknowledge the prevalence of resource and income sharing within poor households.

Limitations

Every research synthesis is only as rigorous as the current research allows. Thus, this meta-analysis maximized the data available to determine the average economic status–SWB relation in developing countries. Despite the robustness of the findings and their replication with the WVS data, certain limitations precluded a more substantive and definitive explanation of the significantly larger economic status–SWB effect size confirmed within developing economies. Specifically, the project was constrained by (a) the designs of the included studies (e.g., few studies attempted to measure physical need satisfaction); (b) the information provided within each study (e.g., not all studies reported basic demographics of the samples, few reported mean sample income or wealth); (c) the measurement, formation, and reporting of variables (e.g., most studies relied on a single-item measure of household income and hedonic measures of SWB, few studies reported the correlations between different domains of SWB and economic status), (d) the methods of data collection (e.g., few studies mentioned the order in which income or wealth and SWB were assessed—see Graham et al., 2004, and Tiliouine et al., 2006, for reports that do), and (e) the statistical techniques used for data analysis (e.g., few studies attempted to test for mediation). Attention to these limitations by future researchers will further improve our understanding of the strength of the economic status–SWB relation.

Conclusion

Recent statistics suggest that more than 1,100,000,000 people worldwide live in extreme poverty (on less than $1 per person per day purchasing power parity,[13] from Sachs, 2005) and by definition have minimal access to the fundamental elements of survival such as food, clothing, shelter, and health care. Another 1.7 billion people live in moderate poverty ($2 per person per day purchasing power parity) and struggle to obtain essential goods and services necessary to fulfill their basic needs. Abbott and Sapsford (2006) described the difficult circumstances that characterize life in Eastern Europe and that may reflect the conditions for many of the poor living in developing countries: "Two thirds of the respondents in Ukraine (67%) and just under a half of the Russians (47.5%) reported having to do without basic food (bread, sugar, milk) at least some of the time, and nearly two thirds of Russians (63.8%) and three quarters of Ukrainians said they could not always afford to buy essential clothing" (p. 260).

The results of this meta-analysis have established an estimate of the magnitude of the economic status–SWB correlation in developing countries and have furthered our understanding of how different measures and sample-level characteristics may moderate this relationship. We implore future research to proceed with more reliable measures, more sound methodology, and more sophisticated analyses in order to better understand how economic status relates to SWB. In addition, if in pursuing mediational and longitudinal models researchers deem that the tenets of need theory are accurate, there is the potential to raise the SWB of nearly half of the world's population by supplying these poorest individuals with the means to satisfy their basic needs.

[13] For a given bundle of goods that costs $1 in the United States, purchasing power parity is the cost in a given country's currency to purchase the same bundle of goods.

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