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*Pers Soc Psychol Rev* 2007; 11; 68

DOI: 10.1177/1088868306294590

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# Social Investment and Personality: A Meta-Analysis of the Relationship of Personality Traits to Investment in Work, Family, Religion, and Volunteerism

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*Investing in normative, age-graded social roles has broad implications for both the individual and society. The current meta-analysis examines the way in which personality traits relate to four such investments—work, family, religion, and volunteerism. The present study uses meta-analytic techniques ( $K = 94$ ) to identify the cross-sectional patterns of relationships between social investment in these four roles and the personality trait domains of agreeableness, conscientiousness, and emotional stability. Results show that the extent of investment in social roles across these domains is positively related to agreeableness, conscientiousness, emotional stability, and low psychoticism. These findings are more robust when individuals are psychologically committed to rather than simply demographically associated with the investment role.*

**Keywords:** *social investment; personality structure; volunteerism*

A recent issue of *National Geographic* (Buettner, 2005) examines three separate “cultures of longevity.” All three cultures had notable similarities including healthy diet and exercise, factors known to be highly predictive of longevity. In addition to these expected similarities, each culture was defined by remarkably strong community involvement ranging from close participation in religion to gathering regularly with family. The social investment that characterizes each of these cultures is an important variable for not only health and longevity but also personality change and society as a whole. Given the broad

importance of such social investments, it is essential to understand who is investing in such a way. The current research meta-analytically investigates the relationship of personality traits to social investment in four important life domains (work, family, religion, and volunteerism) to determine who is more likely to invest in society.

## *What Is Social Investment?*

*Social investment* is defined as investment in, and commitment to, adult social roles (Roberts & Wood, 2006; Roberts, Wood, & Smith, 2005). The primary adult social roles that define social investment are centered in work, family, and community. For example, we consider social investment to occur when individuals make a commitment to a self-defining work role, typically conceptualized as one’s career. In a similar manner, social investment in family is reflected in making a commitment to a partner and to one’s particular definition of *family*, which may include investment in one’s family of origin (parents, siblings, grandparents, and relatives) and/or investment in one’s family of destination (partner, children, siblings’ children). Social investment in community can be manifest in several ways through participation in activities that actively support

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**Authors’ Note:** This research was supported by Grant R01 AG21178 from the National Institute of Aging. The authors would like to thank Andrew Hebrank for his comments on earlier drafts of this manuscript.

*PSPR*, Vol. 11 No. 1, February 2007 68-86  
DOI: 10.1177/1088868306294590

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the structure and functioning of one's immediate social environment. Two concrete manifestations of social investment in community are participating in formal religious institutions and volunteer work. Formal participation in religious institutions helps to create structures that define one's community. Volunteer work reflects a direct attempt to improve one's society and, therefore, is a core indicator of social investment.

The focus on these roles as a phenomenon of adulthood reflects a key aspect of social investment—its developmental and age-graded nature. The acquisition of social investment roles in young adulthood is thought to be a universal social task of adult social living (Helson, Kwan, John, & Jones, 2002). Moreover, it appears that most, if not all, societies assume that these roles will be taken on in the transition out of childhood into adulthood (Roberts et al., 2005). Specifically, engaging in adult roles, such as taking on a career and establishing a family, conforms to specific social clocks (Helson, Mitchell, & Moane, 1984) with the expectation that people will invest in these roles in young adulthood and that to do so either earlier or later is nonnormative. The key psychological feature reflected in the timing of the acquisition of these roles is the necessity for young adults to take full responsibility for their efforts in each of these roles. Many of these roles, such as volunteer work or paid employment, can be acquired by adolescents or continue to be part of the lives of octogenarians. Nonetheless, society specifically expects and even mandates social investments on the part of people making the transition out of childhood to adulthood (Neugarten, Moore, & Lowe, 1965); therefore, the meaning and significance of these roles rises for young adults. This is not to diminish the significance of social investment by children, adolescents, and older populations but to highlight the fact that the commitment (or lack thereof) to these social roles in young adulthood is unequivocal. When individuals commit to these roles as a defining feature of adulthood, they take full responsibility, whether willing or not, for the activities, successes, and failures incurred in these roles.

In developmental terms, the life-course structuring of the social roles that are at the core of social investment have clear links to Eriksonian theory. Committing to work and marital roles are the defining features of the identity and intimacy stages of Erikson's (1968) sequential model of development, whereas commitment to children and community are central to the generativity stage of Erikson's model. In contrast to Erikson's perspective, the sequencing of adult social roles is not a defining feature of social investment. Rather, people engage in each of these roles in their own unique fashion and on their own time line. For example, the sequencing and timing of the onset of these adult roles vary across cultures and history

(Modell, 1989). People may create their family before establishing a career or become part of a community long before creating a family. Individuals may even use a role in one context as a stepping stone to a role in another context, such as finding a life partner through a religious organization or becoming a paid member of an organization for which one volunteers. Therefore, the key to social investment is not whether people experience a crisis in an Eriksonian sense when these roles are encountered or that they are engaged in a specific order but rather, that they make an active, psychological commitment to the roles.

The idea of social investment is also similar to Adler's concept of social interest (Ansbacher, 1968). *Social interest* has been roughly defined as having "interest in the interests of mankind" (Ansbacher, 1968, p. 148). Or in Adler's own words, social interest is "to see with the eyes of another, to hear with the ears of another, to feel with the heart of another" (Ansbacher & Ansbacher, 1956, p. 135). Conceptualizations of social interest have been quite heterogeneous, with some seeing the idea as a personality trait and others as a social, structural phenomenon (Ansbacher, 1968). In contrast, we see social investment as located in the social structural aspects of the life course and as part of one's identity. Moreover, we see these manifestations of social investment as distinct from personality traits and motives and, therefore, related to but not the same as traits and motives. Therefore, it is quite possible that people who have greater levels of social interest (a motive) will be more likely to invest in adult social roles. As well, it may be the case that committing to adult social roles may enhance social interest.

Social investment is also intrinsically tied to the idea of delinquency or antisocial activities, such as conduct disorder. In this case, social investment is the opposite of antisocial activities. For example, according to the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.) (American Psychiatric Association, 1994), a person diagnosed with conduct disorder is described as not conforming to social norms, breaking laws, lying, committing acts of violence such as physical fights and assaults, and disregarding the safety of others. Thus, social investment is functionally the opposite of delinquency, as delinquency involves actively undermining the social connections that make up the fabric of a community or society, whereas social investment involves creating and supporting societal institutions and structures. Their opposition to one another can be seen in the relationship between social investment and criminal behavior. For example, delinquent boys relinquished their life of crime on getting married, in part because of strong attachment to partners who held expectations that ran contrary to criminal activities (Sampson & Laub, 1990). In addition, they discontinued their criminal activities if they acquired a stable and viable job (Laub, Nagin, & Sampson, 1998; Longshore, Chang,

Hsieh, & Messina, 2004). Thus, social investment serves as a counterpart to delinquency.

Commitment is a core feature of social investment. In this regard, the idea is consonant with the idea of commitment found in sociology, specifically identity theory (Stryker, in press). The sociological idea of commitment is that individuals form bonds with people in the small social networks they experience in their day-to-day lives. The nature of the commitments made by people in these small social networks are structured by the roles that people play within the network. Individuals come to their network of relationships both to engage in specific roles and because social groups desire and expect individuals to play certain roles. In this way, we see commitment as a critical component of social investment. Where the two ideas differ is in the fact that social investment is particular to roles acquired in the process of defining oneself as an adult, whereas the sociological perspective on commitment is more general and can apply to any role a person plays.

A key feature of the roles that define social investment is the array of expectations and norms that come with the enactment of roles of adulthood. We hypothesize that committing to a particular social role entails accepting many, if not all, of the expectations and norms for behavior entailed in a given role (Wood & Roberts, 2006). Role norms define the desirable ways in which people are expected to act when they adopt a role. These expectations and norms can be articulated in personality trait terms (Sarbin & Allen, 1964). Both college students and their parents hold almost identical role norms for age-graded roles, such as teenager, college student, young parent, and grandparent (Wood & Roberts, 2006). For example, in Big Five terms, both groups expected young parents to be more agreeable, conscientious, and emotionally stable than teenagers or college students (Wood & Roberts, 2006).

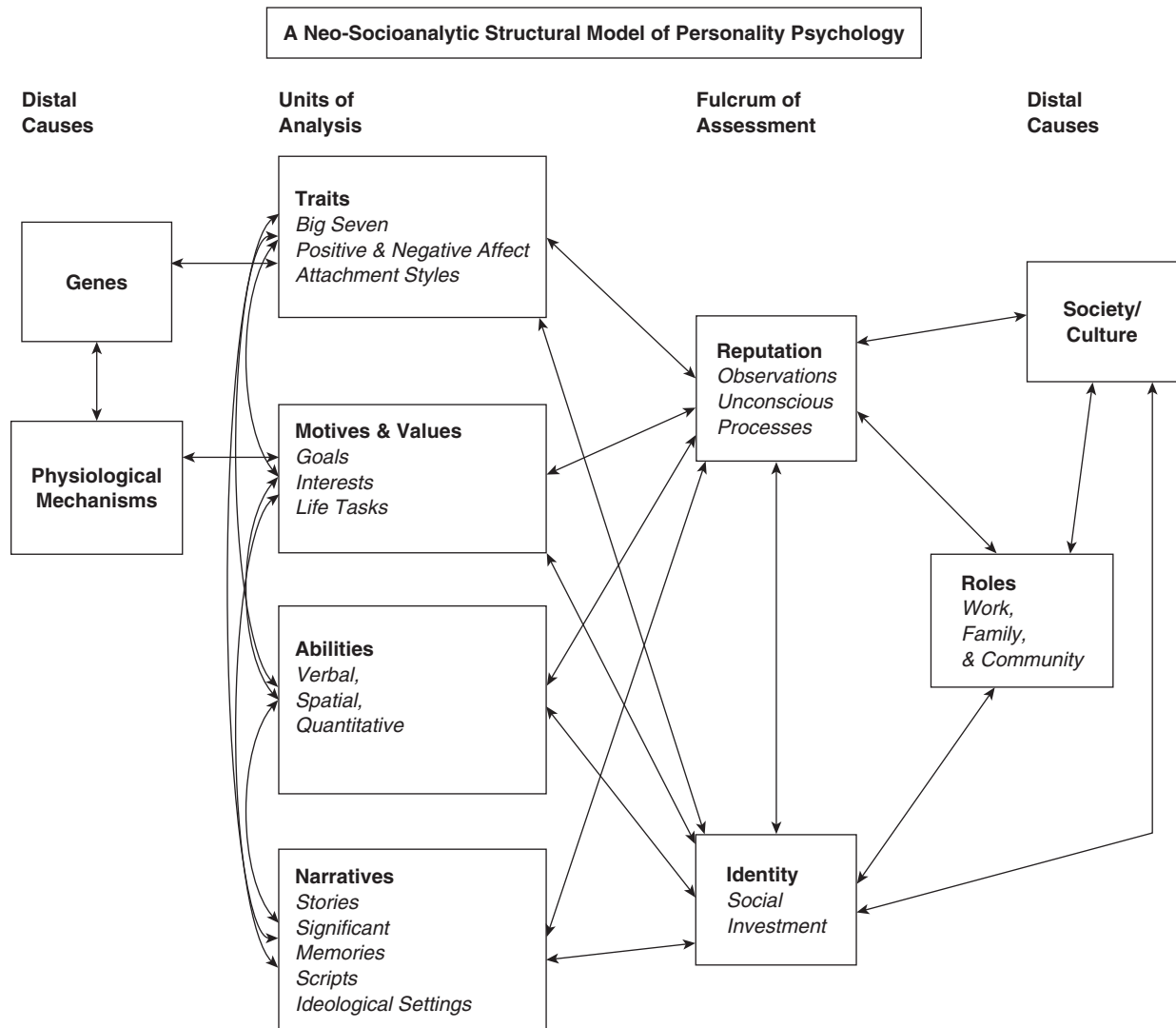
The role norms that come with social investment are important for understanding the relationship of social investment to personality. The meaning of social investment to personality can be illustrated using our neo-socioanalytic model of personality (Roberts, 2006a; Roberts, Harms, Smith, Wood, & Webb, 2006; Roberts & Wood, 2006), which is an elaboration on our earlier considerations of the role of identity in the process of personality continuity and change (Roberts & Caspi, 2003). The structural aspect of this model, depicted in Figure 1, shows that personality is a multifaceted structure in which social roles play a key role. In contrast to other models of personality, the neo-socioanalytic model does not conceptualize the units of personality—traits, motives, abilities, and narratives—as different levels (e.g., McAdams, 1992; Sheldon, 2004) or hierarchically arranged, such that traits cause goals and narratives (e.g., McAdams & Pals, 2006; McCrae & Costa, 1999). Rather, these four domains are

relatively distinct categories of individual differences that are related to one another and are reciprocally related to social roles and the experiences manifest within these roles. At the interface between social roles and the units of personality lie the two perspectives, identity and reputation, that reflect the fact that the units of personality and the components of social roles can be reported on by individuals or by observers of those individuals.

As seen in Figure 1, the social structural aspect of social investment is located in the social roles that people select. The psychological aspect of social investment, which corresponds to the commitment aspect of social investment, is located in a person's identity. Within the neo-socioanalytic framework, a distinction is made between the components of personality (traits, motives, abilities, narratives, and roles) and the metacognitive aspects of identity, such as identity certainty and in this case, social investment (see Roberts & Caspi, 2003; Roberts & Wood, 2006). For example, people can see themselves as conscientious (a trait) and simultaneously be more or less confident in that attribution (identity certainty). Likewise, a person can have a role, such as teacher, and not be psychologically committed to that role, whereas another person could be quite invested in being a teacher.

We see this distinction between the identity and the social structural aspect of social investment as critical for several reasons. First, it reveals the fact that people can have a role that corresponds to being socially invested but not be psychologically committed to that role. The psychological manifestation of social investment comes with the introjection of the role into one's identity and the cognitive and emotional commitment made to the role. This idea is analogous to the Eriksonian concept of identity crisis (Erikson, 1968).<sup>1</sup> That is, people may spend some time considering and occupying roles without being psychologically committed to these roles, an idea reflected in the concept of identity moratorium in which people persevere over their identity choices (Helson, Stewart, & Ostrove, 1995). Also, as part of the identity exploration process, people may try several roles, such as moving from various jobs or relationships, before settling on the role to which they would commit. Consistent with the idea of resolving the identity crisis, with time, most people will come to terms with the roles they have chosen and make cognitive and emotional commitments to their roles. We believe the distinction between occupying a role and being psychologically committed to a role is important because, as we describe below, the latter should be more psychologically meaningful and, therefore, result in stronger relationships to personality variables such as traits and motives than simply possessing a role.

A second reason for the importance of distinguishing among the elements of personality and social investment



**Figure 1** The structural model from the neo-socioanalytic model of personality

found in Figure 1 is it clarifies the relationship of social investment to more traditional units of analysis in personality psychology, such as traits and motives. For example, the bidirectional arrows indicate that certain individuals will be drawn to invest more than others (selection effects), and experiences of social investment can affect change in personality with time (socialization effects). Moreover, these selection effects can derive from personality traits, motives, abilities, and narratives. From the standpoint of selection effects, people tend to differentially select situations and experiences congruent with their existing personality (Snyder & Ickes, 1985). Given the fact that the personality norms and expectations for the roles acquired through social investment focus mostly on being more agreeable, conscientious, and emotionally stable, we would expect individuals

with these personality traits to be more inclined to commit to adult social roles than other people.

In terms of socialization effects, once individuals have invested in adult social roles, they are then subject to the set of expectations and subsequent behavioral contingencies corresponding to the social role (Sarbin, 1967). For example, as individuals begin their first job out of college, they may be expected to act in a more agreeable and conscientious manner both generally and through specific behavioral expectations such as arriving to their job on time and sharing a work space (Roberts, 2006b). In a similar manner, new fathers may feel a press to be more emotionally stable to provide a steadier environment for their family. To the extent that these roles are integrated into the identity of the individuals investing in their new activities, then personality change should



occur (Roberts & Caspi, 2003). For example, once individuals commit to a religious institution and system, the expectations of this community to be more agreeable will be incorporated into the individuals' existing identity structure. This incorporation of the expectations and norms may come about either through assimilation if the individuals already see themselves as agreeable or through accommodation if the expectations for agreeableness exceed their modal level of warmth and compassion (Block, 1982).

Indirect evidence supporting such links between social investment and personality change can be inferred from longitudinal studies examining the transactions between role experiences and personality trait development in young adulthood (Roberts et al., 2005). Several longitudinal studies demonstrate that experiences in work and marriage are associated with increases in traits related to agreeableness, conscientiousness, and emotional stability. Work-related experiences, such as working more than others or attaining higher status, are associated with increases in self-confidence, responsibility, and emotional stability in men and women (Clausen & Gilens, 1990; Elder, 1969; Roberts, 1997; Roberts, Caspi, & Moffitt, 2003; Roberts & Chapman, 2000). Marital and family experiences also are associated with changes in emotional stability and conscientiousness. For example, women experiencing stable, satisfying, and fulfilling relationships become more emotionally stable and conscientious (Roberts & Bogg, 2004; Roberts & Chapman, 2000; Robins, Caspi, & Moffitt, 2002). In a similar manner, engaging in a serious partnership for the first time in young adulthood is associated with decreases in neuroticism and increases in conscientiousness (Neyer & Asendorpf, 2001), whereas receiving more support from family members during adolescence is associated with increases in agreeableness (Asendorpf & van Aken, 2003; Branje, van Lieshout, van Aken, & Haselager, 2004). These longitudinal studies demonstrate that experiences in the conventional roles of work and relationships can explain, in part, the increases in agreeableness, conscientiousness, and emotional stability found in young and middle adulthood.

In sum, social investment is the age-graded commitment to adult social roles. In terms of its placement in the neo-socioanalytic model of personality, social investment in adult roles is reciprocally related to individual differences in personality. In particular, there is clear evidence that social investment should be related to specific domains of personality traits, in particular agreeableness, conscientiousness, and emotional stability. This hypothesis is based on the fact that these adult roles come with a set of norms and expectations that call for these three trait domains. It also stems from the fact that experiences in these social roles are associated with

changes in these three trait domains. Several features of the previous research linking personality traits to adult social roles provided motivation for a more systematic investigation of this relationship. First, many of the longitudinal studies described above fail to capture the critical aspect of social investment, the psychological commitment to the social roles manifest when they are confronted in adulthood. Thus, the relationship of personality traits to psychological involvement, commitment, and investment in adult social roles has not been systematically investigated. Furthermore, the domains of volunteerism and religious participation have not been systematically investigated from a social investment perspective. Given these conceptual and empirical limitations of previous work in this area, we performed a meta-analysis of the relations between social investment in terms of psychological commitment to four role domains—work, family, volunteerism, and religion—and the personality trait domains of agreeableness, conscientiousness, and emotional stability. As an explicit part of our meta-analysis, we contrasted demographic assessments of social investment with more psychological investments, with the expectation that psychological investment in the four role domains would be more strongly related to personality traits than demographic assessments. We review these four role domains in detail before providing an overview of the present study.

#### *Social Investment Across Four Domains: Work, Family, Religion, and Volunteerism*

As we noted above, social investment characterizes individuals who are concretely committed to adult social roles such that they are intrinsically invested in these roles. Although simple demographic participation in any adult social role is congruent with the broad definition of *social investment*, meaningful investment should be characterized by a psychological commitment to the role. Thus, it is more important to examine not whether people are working or married or attend mass once a week but rather, how they participate in these activities. Social investments should have greater impact on both the individual and society as a whole when characterized by affective and cognitive, as well as behavioral, commitment to the goals and expectations entailed within the associated roles. Below, we provide an overview of the conceptualizations of the four social roles central to social investment in terms of both demographic and psychological commitment.

Social investment in the workplace is centered on being invested in one's work and being committed to one's organization. The three psychological variables most consistent with these themes are job involvement, organizational commitment, and organizational citizenship behavior

(OCB). Job involvement is typified by being absorbed in work and claiming that work is central to one's life (Mowday, Steers, & Porter, 1979). Organizational commitment reflects being cognitively and emotionally attached to one's organization (Allen & Meyer, 1990). OCBs can be seen as a reflection of high involvement and commitment. People who are better organizational citizens tend to contribute positively to the work environment, promote the tasks and goals of the organization, and comply with the rules of the organization (LePine, Erez, & Johnson, 2002; C. Smith, Organ, & Near, 1983). These more psychologically rich investment variables can be compared to the more demographic indices often used as proxies for investment in work, such as good attendance, tenure on the job, and career tenure.

Social investment in family life can be examined in three main categories: (a) relationship commitments, (b) parenting investment, and (c) marital status. First, on a relationship level, family social investment can be understood through displaying commitment to one's romantic relationships, typically captured in assessments of marital commitment (Kurdek, 1995). If people have committed to their partner and have had children, one can also examine the extent to which they are invested in their children. This component of family investment is captured by measures such as knowledge of a child's friends, interests, and activities (Pulkkinen, 1996) and acceptance of the parenting role (Bradley, Whiteside-Mansell, Brisby, & Caldwell, 1997). Of course, the psychological investment to relationships and family can also be tracked demographically with variables such as relationship status (whether a person has a partner or is divorced) and by whether they have children. As in the other domains, we contrast studies that examine the psychological components of family investment against the results from studies that examine the demographic aspects of family structure.

Participation in religion and religious activities is an important component of social investment because religious institutions play such a critical role in defining the structure of communities and nature of the culture in any given society (Batson, Schoenrade, & Ventis, 1993). In terms of the psychological versus demographic moderator, religious investment is manifest in concrete means through the frequency of attendance at organized religious services and the frequency of involvement in personal religious practices such as prayer and meditation. We compare these latter forms of investment to the more emotional and cognitive dimension of attitudes toward religion.

Volunteerism, "long-term, planned, prosocial behaviors that benefit strangers and occur within an organizational setting" (Penner, 2002, p. 448), is an ideal example of social investment. However, volunteering as social investment poses a difficulty for our study, as we

know of no studies that examine psychological investments in volunteering in relation to personality traits. Rather, the literature on the relationship of volunteering and volunteerism to personality traits tends to examine demographic components of the activity. For example, the majority of this research focuses on comparing volunteers versus nonvolunteers, the amount of volunteering a person participates in, and the quality of volunteerism, which is gauged by indicators such as a supervisor's rating of the volunteer's performance or their attendance at meetings. Thus, for this domain, we do not test the moderating effect of psychological versus demographic aspects of the data.

### *The Current Meta-Analysis*

The current study incorporates the research from four domains of social investment—work, family, religion, and volunteering—into a meta-analytic framework to investigate the relationships between social investment and personality traits in adulthood. We expect to find positive associations between three trait domains—agreeableness, conscientiousness, and emotional stability—and social investments made in these four social investment domains. In addition, we examine one critical moderator: the difference between associations drawn from studies that explicitly examine the subjective, psychological investment made in these social roles and those associations drawn from studies that examine the demographic representation of these role experiences. It is our contention that cognitive and emotional investments will be more strongly related to personality traits than simple demographic representations of investments (e.g., married versus divorced). By examining the relationship between personality traits and social investment, we can begin to understand the transactional relationship between these two important individual differences.

## METHOD

### Literature Searches

We used the PsycINFO database as our primary method of locating studies for the current meta-analysis. We searched this database for the personality keywords *personality*, *personality traits*, *Big Five*, *five factor model*, *conscientiousness*, *agreeableness*, *neuroticism*, and *psychoticism* in conjunction with the following social investment keywords: *religious commitment*, *religious involvement*, *religious investment*, *religiosity*, *religion*, *divorce*, *family commitment*, *marital commitment*, *parental commitment*, *family involvement*, *marital involvement*, *parental involvement*, *family investment*, *marital investment*, *parental investment*, *marriage*,

*volunteerism, volunteer, helping behavior, volunteer commitment, volunteer investment, volunteer involvement, organizational citizenship behavior, extra-role behavior, contextual performance, compliance, career commitment, career involvement, career investment, job commitment, job involvement, job investment, occupational commitment, occupational investment, occupational involvement, work commitment, work investment, and work involvement.* In addition to the database search, we examined the references of known meta-analyses of personality trait relations to religion (Saroglou, 2002) and work (LePine et al., 2002; Organ & Ryan, 1995) for relevant articles. We then used a “snowballing” technique wherein we searched the references of all the articles found in the database search for additional relevant articles. Finally, we initiated a call for data on the Society for Personality and Social Psychology listserver.

### Criteria for Study Inclusion

A study was included in the meta-analysis if it met three criteria: (a) a personality trait that could be categorized as belonging to the domains of agreeableness, conscientiousness, or emotional stability; (b) a measure of commitment to/investment in one of the four social investment domains; and (c) some index of the size of the relationship between these two variables with an associated sample size. In addition, no meta-analytic data were used.

Given the above criteria, 94 studies qualified for the current meta-analysis—37 in the work domain, 12 in the family domain, 36 in the religion domain, and 7 in the volunteer domain. In addition, 1 study overlapped both the work and religion domains and another study overlapped the work, family, and religion domains. The analysis included 35,459 total participants—8,537 in the work domain, 8,694 in the family domain, 15,052 in the religion domain, 2,931 in the volunteer domain, 149 in the study that overlapped the work and religion domains, and 96 in the study that overlapped the work, family, and religion domains. We coded 273 effect sizes from these studies—124 in the work domain, 32 in the family domain, 102 in the religion domain, and 15 in the volunteer domain. Basic information for each study is summarized in Table 1.

### Study Variables

#### *Trait Categories*

In accordance with our previous meta-analyses (e.g. Roberts & DelVecchio, 2000; Roberts, Walton, & Viechtbauer, 2006), we categorized personality traits as

belonging to one of three traits: agreeableness, conscientiousness, or emotional stability. One exception remains uncategorized within the religion domain: the psychoticism dimension of Eysenck’s personality system. Psychoticism reflects a blend of low agreeableness and low conscientiousness (McCrae & Costa, 1985); thus, we retained it as a separate category that reflects the mutual relationship of these two Big Five dimensions and social investment. As psychoticism was reported only in studies within the religion domain of social investment, this exception applies to that domain only, and findings for psychoticism are reported only within the religion domain. In keeping with the need to code effects in the positive direction given the trim and fill procedure described below, the predominantly negative effect sizes in studies with psychoticism were reversed to indicate a relationship with low psychoticism, termed socialization. In a similar manner, any effect sizes reported in studies with neuroticism rather than its inverse, emotional stability, were reversed.

#### *Social Investment in the Workplace*

*Psychological variables.* Three domains of psychological work investment were examined: involvement, commitment, and OCB (which includes contextual performance and dedication).

Given the similar nature of the OCB, contextual performance, and dedication constructs, we coded these constructs as one larger characteristic of organizational investment. OCB is most commonly assessed in a self-report or observer-report questionnaire format with items such as “volunteered for things that were not required” (Becker & Randall, 1994). During the years of studying OCB, multiple measures assessing multiple dimensions of OCB have been developed: These include measures of subdomains of OCB such as altruism, courtesy, sportsmanship, and generalized compliance, as well as related constructs such as civic virtue and citizen role identity. Contextual performance is any behavior that “contribute[s] to organizational effectiveness in ways that shape the organizational, social, and psychological context that serves as the catalyst for task activities and processes” (Borman & Motowidlo, 1997, p. 100). Contextual performance, as with OCB, is assessed in self- or other-reported questionnaire formats with items such as “comply with instructions even when supervisor is not present” and “voluntarily do more than the job requires to help others or contribute to effectiveness” (Motowidlo & Van Scotter, 1994). Dedication is examined through measures of both job and work dedication, with self- and other-rated items. Dedication targets behaviors similar to those captured with



**TABLE 1:** Study Information by Social Investment Domain

<i>Work</i>				
<i>First Author</i>	<i>Year</i>	<i>N</i>	<i>Personality Measure</i>	<i>Social Investment Outcome</i>
Anhalt	1995	100	A, ES, C	altruism, compliance
Avis	2001	203	A, ES, C	contextual performance
Barrick	1994	194	C	involvement
Blau	1985	170	A	involvement, commitment, tenure, withdrawal/tenure
Bohle	1997	156	ES	commitment
Brandon	2002	221	C	dedication
Chan	2002	160	A, ES, C	dedication, tenure
Edwards	1980	223	ES	involvement
Fausz	1994	199	A, C	commitment
Foust	2001	152	C	involvement, commitment, absenteeism/tardiness
Gellatly	2001	79	A, C	contextual performance
Grojean	2002	251	A, ES, C	contextual performance, citizen role identity
Hattrup	1998	103	C	OCB
Hirschfeld	1996	130	C	involvement, commitment, tenure, absenteeism/tardiness
Hirschfeld	2000	457	C	involvement, commitment
Hogan	1998	94-214	A, ES, C	dedication, contextual performance
Kidwell	1997	260	C	courtesy, commitment
Konovsky	1996	402	A, C	altruism, civic virtue, courtesy, compliance, sportsmanship
Luthans	1987	406	A, ES	commitment, tenure
Manlove	1993	176	ES	commitment
Mehl	2004	96	A, ES, C	talking about job/occupation
Miller	1999	104	ES, C	contextual performance
Motowidlo	1994	254	A, C	contextual performance
Naquin	2002	247	A, ES, C	involvement, commitment
Neuman	1998	284	A, C	altruism, civic virtue, courtesy, sportsmanship, OCB
Newson	2002	133	C	commitment
O'Connell	2001	112	ES, C	OCB
Okun	1998	240	A, ES, C	commitment
Prabhaker	1979	40	A, ES, C	involvement
Raja	2004	197	ES, C	commitment
Roberts, Caspi, & Moffitt	2003	859	A, ES, C	involvement
Salomon	2000	233	A, ES, C	dedication
Smith	1975	220	ES	altruism, compliance, tenure
Strümpfer	1997	149	ES, C	involvement, commitment
Strümpfer	2001	141	C	commitment
Van Scotter	1996	499-514	A, C	dedication
Verma	1985	68	A, ES, C	involvement
Williams	1999	94	A, ES, C	contextual performance, tenure
Witt	2002	540	A, ES, C	dedication
<i>Family</i>				
<i>First Author</i>	<i>Year</i>	<i>N</i>	<i>Personality Measure</i>	<i>Social Investment Outcome</i>
Bradley	1997	112	A, ES	parental investment, acceptance of parenting role
Brook	1995	71	A, C	parental involvement
Cattel	1967	278	A, ES, C	relationship status
Cramer	1993	1,935	ES	relationship status
Engel	2002	63	A, ES, C	relationship commitment
Jocklin	1996	1,574	A, ES, C	relationship status
Johnson	2004	3,547	A, ES, C	relationship status
Kelly	1987	207	ES, C	relationship status
Kurdek	1997	258	A, ES, C	relationship investments
McCranie	1986	431	C	relationship status
Mehl	2004	96	A, ES, C	talking about family
Metsäpelto	2003	86	A, ES, C	parental knowledge
Schmitt	2002	88	A	relationship commitment

*(continued)*

TABLE 1: (continued)

<i>Religion</i>				
<i>First Author</i>	<i>Year</i>	<i>N</i>	<i>Personality Measure</i>	<i>Social Investment Outcome</i>
Francis	1981	1,088	ES	Francis attitude toward religion
Francis	1983	1,715	ES	Francis attitude toward religion
Francis	1985	132	P	Francis attitude toward religion
Francis, Pearson, & Kay	1988	3,228	ES	Francis attitude toward religion
Francis & Pearson	1988	181	ES, P	Francis attitude toward religion
Francis & Pearson	1991	177	ES	Francis attitude toward religion
Francis	1991	165	ES, P	Francis attitude toward religion
Francis	1992	898	P	Francis attitude toward religion, church attendance
Francis & Montgomery	1992	647	ES, P	Francis attitude toward religion
Francis & Katz	1992	190	ES, P	general religiosity
Francis	1993	126	ES, P	Francis attitude toward religion
Francis	1994	230	P	church attendance, prayer behavior
Francis	1995	269	ES, P	Francis attitude toward religion
Francis & Wilcox	1996	236	P	church attendance, prayer behavior
Francis	1996	885	ES, P	prayer behavior
Francis & Astley	1996	398	ES, P	prayer behavior
Francis & Bolger	1997	50	ES, P	church attendance, prayer behavior
Francis	1997	1,128	ES, P	church attendance, prayer behavior
Heaven	1990	93	ES, P	traditional religiosity, religious commitment
Johnson	1989	99	ES, P	intrinsic, extrinsic
Kay	1981	83	P	Francis attitude toward religion
Kosek	1999	104	A, ES, C	intrinsic, extrinsic
Lewis	1994	82-150	ES, P	Francis attitude toward religion, church attendance, prayer behavior
Lewis	1995	58-106	ES, P	Francis attitude toward religion
Lewis	1996	100	P	church attendance, prayer behavior
Maltby	1995	92	P	church attendance, prayer behavior
Maltby	1997	108	ES, P	Francis attitude toward religion, church behavior, prayer behavior
Maltby	1999	96	ES, P	intrinsic, extrinsic
McCullough	2003	492	A, ES, C	general religiosity
Mehl	2004	96	A, ES, C	talking about religion
Pearson	1986	569	A, C	Francis attitude toward religion
Robinson	1990	97	ES, P	intrinsic, extrinsic
Smith	1996	191	ES, P	church attendance, prayer behavior
Strümpfer	1997	149	ES, C	intrinsic
Taylor	1999	368-661	A, ES, C	intrinsic, extrinsic, objective religious involvement
Wilde	1997	50	P	general religiosity
Wilson	1968	100	ES, P	objective religious involvement, traditional religiosity
Wilson	1973	97	ES	objective religious involvement
<i>Volunteerism</i>				
<i>First Author</i>	<i>Year</i>	<i>N</i>	<i>Personality Measure</i>	<i>Social Investment Outcome</i>
Benson	1980	113	ES, C	helping behavior
Best	1977	34	ES	volunteer vs. nonvolunteer
Burke	1986	97	ES, C	volunteer length, volunteer performance
Cnaan	1999	510	ES	volunteer length
Penner	2002	847	C	volunteer length, number of organizations volunteer with
Smith	1975	1,270	A, ES, C	volunteer vs. nonvolunteer
Spitz	1993	60	ES	volunteer completion

NOTE: Names of all authors given in places where a first author has more than one publication in a given year. A = agreeableness; C = conscientiousness; ES = emotional stability; P = psychoticism; OCB = organizational citizenship behavior.

both OCB and contextual performance, as the behaviors in question are oriented toward promoting the organization. Items assessing dedication include “asks for a challenging work assignment” (Van Scotter &

Motowidlo, 1996), “employee strives to meet deadlines” (Witt, Kacmar, Carlson, & Zivnuska, 2002), and items focused on accountability and attention to supervisors (Hogan, Rybicki, Motowidlo, & Borman, 1998).

Job and work involvement assesses the importance of jobs to individuals through examining both behavioral and psychological commitment to their jobs. Work involvement is measured with items such as “you would work despite winning the lotto” (Greenberger & O’Neil, 1993), and job involvement is measured with items such as “the most important things that happen to me involve my work” (Lodahl & Kejner, 1965) and “I am absorbed in the type of work that I do in my present job” (Paullay, Alliger, & Stone-Romero, 1994). Work involvement can also be examined from the standpoint of work alienation, or detachment from work, with items such as “I find it difficult to imagine enthusiasm concerning work” (Kobasa, Maddi, & Kahn, 1982).

Commitment to work included measures of organizational and occupational commitment to job, career, or institution. Measures of commitment generally tap the extent to which workers are willing to say that they are committed to their work or their organization. Organizational commitment is defined by supporting the beliefs and values of the organization, exerting effort for the organization, and wanting to continue to be a part of the organization (Mowday et al., 1979). Measures of organizational commitment include “I really care about the fate of this organization” (Mathieu & Zajac, 1990) and “I would be very happy to spend the rest of my career with this organization” (Allen & Meyer, 1990). Similar assessments of commitment occur in the domains of career and occupation.

*Demographic variables.* We compiled studies that examine explicit indices of work investment, including attendance, transfer frequency, and job tenure.

### *Social Investment in Family Life*

Family social investment variables were drawn from one of three domains: (a) parenting investment, (b) relationship commitments, and (c) marital status.

*Psychological variables.* The investment of a parent in his or her child is an important quality of investing in family life. Measures assessing knowledge of a child’s friends, interests, and activities (Pulkkinen, 1996) and acceptance of the parenting role (Bradley et al., 1997) measure the degree to which a parent is invested in and aware of his or her child.

Relationship commitment and investment was represented with self-report items such as “Has the thought of ending your relationship crossed your mind in the past three months?” (Schmitt, 2002) and “I’ve put a lot of energy and effort into my relationship” (Kurdek, 1995).

*Demographic variables.* Marital status represents investment in the stability of the relationship and an

investment in maintaining the relationship. By comparing individuals who have ended marriages to those individuals who have not ended marriages, length of marriages, and length of relationships, a general assessment of commitment to marriage can be assessed.

### *Social Investment as Religious Practice*

Variables representing investment in religion fell into five domains: (a) attitudes toward religion, (b) commitment to religion, (c) attendance of religious services, (d) participation in personal religious practice, and (e) comparing religious and nonreligious groups.

*Psychological variables.* Numerous scales measure general attitudes toward religion. The Francis Scale of Attitude Toward Christianity examines the extent to which an individual supports traditional Christian beliefs and practices. Items in this attitudinal scale include “The church is very important to me” and “The idea of God means much to me” (Francis & Stubbs, 1987). In a similar manner, the Katz scale (Katz & Schmida, 1991) and the Moslem Attitude Toward Religiosity Scale (Wilde & Joseph, 1997) assess Jewish and Moslem attitudes toward religion, respectively. Religious attitudes are also assessed in the Religious Orientation Scale (Allport & Ross, 1967), with a specific focus on extrinsic and intrinsic religious beliefs.

*Demographic variables.* Investment in spiritual organizations is measured by the frequency with which an individual attends church, synagogue, or some other form of organized religious practice. Organized religious involvement is generally assessed with a single-item self-report measure of frequency of attendance. Religious investment is also measured by examining the frequency of personal religious involvement: An individual is most commonly asked the frequency of personal religious practices such as prayer or meditation. Finally, religious investment is also assessed through comparing individuals who openly label themselves as religious compared to those individuals who label themselves as nonreligious.

### *Social Investment in Volunteer Behavior*

Volunteer outcomes fell into three domains: (a) volunteers as compared to nonvolunteers, (b) quantity of volunteerism, and (c) quality of volunteerism.

*Volunteers as compared to nonvolunteers.* On a basic level, volunteering is, in and of itself, a social investment. Thus, comparing volunteers to nonvolunteers allows an understanding of volunteering as social investment.

*Quantity of volunteerism.* The hours that an individual volunteers, as well as length of volunteer behavior and the number of organizations to which an individual volunteers, represent the extent of investment in volunteering activities.

*Quality of volunteerism.* The quality of volunteerism such as completion of volunteering duties, quality of performance as rated by supervisors, attendance of volunteering activities, and commitment to the volunteer institution represent the understanding of investing in volunteerism.

### Computation and Analysis of Effect Sizes

To ensure all effect sizes were correctly recorded from the original manuscript in which they were published, two independent coders separately examined all the studies included in the current meta-analysis and extracted the relevant effect sizes. Initial overall agreement between the two coders was high across the domains with an average correlation of .97 with correlations of .98, .99, .99, and .94 in the work, family, religion, and volunteer domains, respectively, indicating that few errors were made in the initial recording of effect sizes from the primary manuscripts to our meta-analytic database. Where disagreements in coding did exist, the database was checked against the original data from the articles and corrected. All effect sizes were converted into correlation coefficients per Rosenthal (1991). These correlation coefficients were then transformed into Fisher's *Z*. Standard error and sample variance were also calculated for each effect per Hedges and Olkin (1985). All effects were transformed back to correlation coefficients when reporting final statistics.

We tested the likelihood of publication bias using a trim and fill procedure (Duval & Tweedie, 2000). Publication bias reflects the possibility that the studies retrieved for the meta-analysis may not include all studies actually conducted, with the most likely omissions being studies that failed to find statistically significant results. The trim and fill procedure is a nonparametric statistical technique that examines the symmetry and distribution of effect sizes plotted against the inverse of the variance or standard error. This technique first estimates the number of studies that may be missing because of publication bias, with *publication bias* meaning studies with effect sizes that are low or near 0 relative to the average effect. Then, the trim and fill procedure calculates hypothetical effects for potentially omitted studies and reestimates the average effect size and confidence intervals based on the influence of studies that would have been included in the analyses if they had been published. For effect sizes that were predominantly in the

negative direction, we first reversed the sign of the effects before running the trim and fill analyses because the procedure assumes that the effects are generally positive. The trim and fill procedure was performed with the DVBID library (Biggerstaff, 2000) using the S-Plus statistical computing program. The procedure as implemented in the DVBID library generates three estimators of missing studies,  $L_0$ ,  $R_0$ , and  $Q_0$ . We used the  $L_0$  estimator as it is the most robust estimator (Duval & Tweedie, 2000).

To determine whether each relationship shared a common effect size, we calculated the homogeneity statistic  $Q$  within each of the social investment domains and personality traits. A random-effects model was used for heterogeneous effect sizes throughout the study to obtain an estimate of the overall effect size for each social investment domain and personality factor, which was also tested for statistical significance by computing a 95% confidence interval.

As with previous meta-analyses (Roberts, Walton, et al., 2006), we used the more stringent random-effects model with moderators to test for the effects of moderator variables, thus, decreasing the probability of Type I errors. To determine the portion of  $Q$  that could be attributed to moderator effects, we computed the  $Q$ -between statistic by subtracting the combined random-effects  $Q$  statistics for each moderator from the overall random-effects  $Q$  statistic for that domain and trait per Lipsey and Wilson (2001). We then compared this  $Q$ -between statistic to a chi-square distribution with 1 degree of freedom, again per Lipsey and Wilson, to determine the existence of significant moderator effects.

## RESULTS

For consistency in our findings, all effects were coded to reflect the positive end of each personality dimension (e.g., emotional stability rather than neuroticism; socialization rather than psychoticism) and positive social investment behaviors (e.g., reverse coding divorce and job withdrawal). All results are presented by the domain of social investment behavior.

### *Relationship Between Personality and Work Social Investment*

Table 2 summarizes the relationship between work social investment and each personality trait. Work-related social investment was significantly related to agreeableness, conscientiousness, and emotional stability per the 95% confidence interval (i.e., 0 was not included in the interval). The most robust relationship was found with conscientiousness ( $\rho = .19$ ) and the least robust

**TABLE 2:** Average Correlation of Work Social Investments With Personality Traits, Number of Studies, *N* for Samples, 95% Confidence Intervals, and *Q* Statistics

Personality Trait	$\rho$	<i>k</i>	<i>N</i>	CI		<i>Q</i>
				Lower	Upper	
Agreeableness	.12	22	5,664	.08	.16	42.02*
Demographic	.06	5	926	.00	.12	1.45
Psychological	.13	21	5,568	.09	.17	40.41*
Conscientiousness	.19	34	7,347	.15	.23	94.10*
Demographic <sub>a</sub>	.08	5	632	.00	.16	.86
Psychological <sub>b</sub>	.18	32	7,314	.13	.23	123.94*
Emotional stability	.11	24	5,188	.06	.16	68.32*
Demographic <sub>a</sub>	-.01	6	1,146	-.09	.08	9.42
Psychological <sub>b</sub>	.12	23	5,092	.06	.17	82.64*

NOTE: CI = confidence interval. Different subscripts indicate significant ( $p < .01$ ) differences among the factors based on paired *Q*-between ANOVA.

\* $p < .05$ .

with emotional stability ( $\rho = .11$ ). All tests of heterogeneity of variance (*Q*) were significant at the .05 level, indicating the potential existence of moderator variables.

The primary moderator of interest was whether psychological investment was more strongly related to personality traits than demographic indices of work investment.<sup>2</sup> Consistent with this hypothesis, psychological indices of work social investment were more strongly related to conscientiousness ( $\rho = .18$ ) than were objective reports such as tenure ( $\rho = .08$ ) given significant *Q<sub>B</sub>* analyses (see Table 2). A similar pattern was demonstrated for emotional stability, with psychological investment being more highly related to emotional stability ( $\rho = .12$ ) than were demographic reports ( $\rho = -.01$ ). The moderator analysis was not significant for agreeableness,  $\chi^2(1, N = 6,494) = .16, p = .69$ .

#### Personality and Family Social Investment

As hypothesized, the 95% confidence interval indicates that family social investment significantly relates to agreeableness, conscientiousness, and emotional stability (i.e., 0 was not included in the interval), as shown in Table 3. With these traits, the most robust relationship was found for both conscientiousness and emotional stability ( $\beta = .16$ ) and the least robust for agreeableness ( $\beta = .15$ ). As within the work and religion domains, tests of heterogeneity of variance (*Q*) were significant at the .05 level for all three traits, suggesting the possibility of moderator variables.

The moderator analysis suggested that psychological indices of family social investment were more strongly related to agreeableness and emotional stability. Psychological reports of family investment were more strongly related to agreeableness ( $\beta = .21$ ) than were

**TABLE 3:** Average Correlation of Family Social Investments With Personality Traits, Number of Studies, *N* for Samples, 95% Confidence Intervals, and *Q* Statistics

Personality Trait	$\rho$	<i>k</i>	<i>N</i>	CI		<i>Q</i>
				Lower	Upper	
Agreeableness	.15	10	6,173	.04	.26	91.78*
Demographic <sub>a</sub>	.07	4	5,495	-.04	.18	31.22*
Psychological <sub>b</sub>	.21	6	678	.03	.39	25.14*
Conscientiousness	.16	10	6,817	.08	.24	60.40*
Demographic	.15	6	6,340	.05	.25	54.61*
Psychological	.18	4	478	.09	.27	2.99
Emotional stability	.16	10	8,362	.07	.24	95.76*
Demographic <sub>a</sub>	.14	6	7,843	.04	.25	85.35*
Psychological <sub>b</sub>	.19	4	519	.05	.33	6.37

NOTE: CI = confidence interval. Different subscripts indicate significant ( $p < .01$ ) differences among the factors based on paired *Q*-between ANOVA.

\* $p < .05$ .

demographic indices ( $\beta = .07$ ). In a similar manner, emotional stability was more robustly related to psychological investment in family ( $\rho = .19$ ) than to demographic investment ( $\rho = .14$ ). The moderator analysis was not significant for conscientiousness,  $\chi^2(1, N = 6,818) = 2.80, p = .09$ .

#### Personality and Religious Social Investment

Table 4 summarizes the relationship between religious social investment and each personality trait. Per the 95% confidence interval, religious social investment shows the expected relationship to agreeableness and socialization (i.e., 0 was not included in the interval), with effect sizes of .16 (agreeableness) and .18 (socialization). However, we did not find the expected relationship with emotional stability or for conscientiousness, although the confidence interval for conscientiousness did not include any negative values. Again, all tests of heterogeneity of variance (*Q*) were significant.

Psychological religious investment was more strongly related to agreeableness than demographic investment in religion. Psychological religious investment related to agreeableness more robustly when assessed subjectively with indices of attitude toward religion ( $\rho = .21$ ) than when assessed objectively with measures of general church attendance or prayer behavior ( $\rho = .04$ ). The *Q<sub>B</sub>* analyses were not significant for conscientiousness  $\chi^2(1, N = 2,439) = 2.98, p = .08$ , although it should be noted that the relationship between psychological investment in religion and conscientiousness was statistically significant ( $\rho = .12$ , confidence interval = .03 to .21). The *Q<sub>B</sub>* analyses also were not significant for emotional stability,  $\chi^2(1, N = 12,636) = 2.39, p = .12$ , or for socialization,  $\chi^2(1, N = 7,300) = 3.54, p = .06$ .



**TABLE 4:** Average Correlation of Religion Social Investments With Personality Traits, Number of Studies, *N* for Samples, 95% Confidence Intervals, and *Q* Statistics

Personality Trait	$\rho$	<i>k</i>	<i>N</i>	CI		<i>Q</i>
				Lower	Upper	
Agreeableness	.16	5	1,805	.04	.29	23.01*
Demographic <sub>a</sub>	.04	2	757	-.06	.13	1.12
Psychological <sub>b</sub>	.21	4	1,533	.10	.32	12.66*
Conscientiousness	.09	6	1,954	.00	.18	16.54*
Demographic	.02	2	757	-.13	.17	2.01
Psychological	.12	5	1,682	.03	.21	11.55*
Emotional stability	.00	30	12,117	-.02	.03	45.90*
Demographic	.01	8	2,690	-.03	.05	5.21
Psychological	.00	24	9,946	-.03	.03	43.08*
Socialization	.18	28	6,267	.13	.23	68.23*
Demographic	.19	11	3,563	.13	.25	24.76*
Psychological	.20	19	3,737	.14	.26	47.01*

NOTE: CI = confidence interval. Different subscripts indicate significant ( $p < .01$ ) differences among the factors based on paired *Q*-between ANOVA.

\* $p < .05$ .

### Personality and Volunteer Social Investment

There was insufficient data available to investigate the relationship of volunteer social investment and agreeableness. However, as shown in Table 5, volunteer social investment did show the expected relationship to conscientiousness ( $\rho = .15$ ). Contrary to our expectations, volunteering was not related to emotional stability ( $\rho = .09$ ). As with the other domains, moderator variables were suggested by the significant tests of heterogeneity of variance (*Q*) across all traits. There were not, however, enough studies addressing the psychological aspects of investment in volunteer activities to compare to demographic outcomes.

### Publication Bias

The trim and fill analyses across all traits for each domain ( $L_0$ ) did not suggest publication bias for any significant population effect size estimate.

## DISCUSSION

The current meta-analysis provides some evidence for the expected relationship between social investment and the personality traits of agreeableness, conscientiousness, and emotional stability. We expect the relationship between these variables exists for two reasons. First, people who are more agreeable, conscientious, and emotionally stable are more likely to engage in social investment (selection effect). Secondly, the acquisition of conventional social roles that comes with social investment brings increased expectations to be agreeable,

**TABLE 5:** Average Correlation of Volunteer Social Investments With Personality Traits, Number of Studies, *N* for Samples, 95% Confidence Intervals, and *Q* Statistics

Personality Trait	$\rho$	<i>k</i>	<i>N</i>	CI		<i>Q</i>
				Lower	Upper	
Agreeableness	.02	1	1,270			
Conscientiousness	.15	5	2,387	.02	.28	24.18*
Emotional stability	.09	6	2,084	-.03	.21	20.58*

NOTE: CI = confidence interval.

\* $p < .05$ .

conscientious, and emotionally stable (socialization effect). Acting in accord with these expectations during long periods of time may result in personality change, such that people who engage in more social investment become more agreeable, conscientious, and emotionally stable, resulting in a correlation between these dimensions. The current meta-analysis also provides some support for the importance of conceptualizing social investment in psychological rather than demographic terms, because deep psychological investment in each of the domains of social investment was more strongly related to agreeableness, conscientiousness, and emotional stability than was simple demographic investment.

As expected, we found positive relations between all investments in work, religion, family, and volunteer activities and one or more of the traits in question. Specifically, social investments in work and family were positively related to conscientiousness, agreeableness, and emotional stability. Social investment in religion was positively related to agreeableness and socialization (a theoretical parallel to being both agreeable and conscientious). Finally, social investment in volunteer activity was positively related to conscientiousness. Thus, people who invest more in social institutions tend to be warmer, more responsible and organized, and less anxious and depressed than others.

From the standpoint of selection effects, it appears that a subset of the population is responsible for many of the social investments made to society. That is, those individuals who are conscientious, agreeable, and/or emotionally stable tend to be more active in structuring and defining fundamental institutions of society, such as the meaning of work, marriage, and community. These social role investments may, in fact, provide substantial benefits to these individuals. Social investments are linked to better social functioning in the form of increased social support and to better health outcomes, such as improved psychological and physical health (T. Smith, McCullough, & Poll, 2003) and increased longevity (McCullough, Hoyt, Larson, Koenig, & Thoresen, 2000). Thus, it appears that the propensity to be nice, responsible, and emotionally stable may result in

a greater sacrifice to the creation of structure in society, but in true reciprocal fashion, that sacrifice is rewarded with many tangible benefits (e.g., Trivers, 1971).

From the standpoint of socialization effects, although our expectations for the quality of investment as a moderator did not hold across the board, there was some evidence to suggest that the trait-investment relationships were more robust when we compared psychological and demographic versions of the social investment variables. The decision to consider the difference between psychological and demographic versions of social investment came partially from our theoretical examination of social investment and personality change in the form of the social investment hypothesis. Recent research shows that certain personality traits demonstrate a marked increase in young adulthood, with normative increases in agreeableness, conscientiousness, and emotional stability (Roberts, Walton, et al., 2006; Robins, Fraley, Roberts, & Trzesniewski, 2001; Srivastava, John, Gosling, & Potter, 2003). The social investment hypothesis states that investing in normative social institutions, such as creating a family, establishing one's career, or becoming an integral member of one's community, is one of the driving mechanisms of the normative patterns of personality development seen in young adulthood (Roberts et al., 2005).

Although the current meta-analysis is not equipped to answer questions of causality given its cross-sectional nature, it does provide some support for the social investment hypothesis of personality development in that investment in social investment roles may be a catalyst for personality change in adulthood (Roberts et al., 2005; Roberts & Wood, 2006). The primary assumption behind the social investment hypothesis is that experiences in these social roles, as well as expectations for role-appropriate behavior, contribute to changes in personality traits. Previous longitudinal research suggests that experiences in social roles relates to changes in personality (e.g., Neyer & Asendorpf, 2001; Roberts, 1997; Roberts et al., 2003). Furthermore, intrinsic to the social investment hypothesis is the conjecture that psychological transformation is much more critical to developing personality traits than demographic changes experienced by individuals with the passage of time. For example, people may embark on new jobs and relationships but not be psychologically invested in the process. That is to say, although they may occupy a position in an organization, they may be simply going through the motions until they find a better situation for themselves. It is our contention that experiences in roles to which individuals are not committed will not impart change in personality simply because the individuals will not integrate these experiences in their identity because they are not deemed to be

salient or relevant to their identity (Roberts & Wood, 2006).

The second reason for differentiating between psychological and demographic aspects of social investment arises from our observation that most longitudinal investigations of life experiences and personality traits focus on demographic variables. The inevitable consequence of this is research linking changes in personality traits to discrete demographic representations of life experience, such as whether one gets divorced or not (i.e., Roberts, Helson, & Klohnen, 2002). Although informative, it is clear that assessing the nature of the divorce would be a more meaningful psychological construct to study, as some divorces can be traumatizing, whereas others may be liberating. Our study of social investment highlights the necessity for psychological assessments of life experiences as they hold a higher potential for tracking the significant aspect of a life experience.

#### *Limitations, Future Directions, and Conclusions*

We must now add a few caveats and comments on limitations of the research investigating social investment. A brief examination of the articles used in the current meta-analysis reveals a distinct lack of research relating social investment to personality traits in major journals. Given the importance of social investment for not only personality traits but also health, well-being, longevity, and even society at large, we feel that an important facet of psychological experience is being neglected and call for more research on this critical aspect of life.

We initially defined *social investment* as the commitment to adult social roles within the neo-socioanalytic model of personality (Roberts, Harms, et al., 2006; Roberts & Wood, 2006). With this definition in mind, we must acknowledge that the four social roles examined in the current study are not the only adult roles that can be characterized as social investment. Investments in adult roles such as politics or mentoring are among the many that may be characterized as social investment roles. In a similar manner, the ways in which social roles are manifest in current research are not the only ways in which individuals can invest in these roles. For example, because of a simple lack of data, commitment in nontraditional marriages or marriage-like relationships was not considered here. The key related question that arises from considering the multiple facets of social investment is whether each way of investing comes with the same expectations for increased agreeableness, conscientiousness, and emotional stability. For example, does common-law marriage or same-sex marriage come with a similar set of expectations as traditional marriage?

In addition, within a neo-socioanalytic framework, we must begin to address the ways in which social investment

relates to personality dimensions other than traits. Within each of the four social investment domains examined in the current meta-analysis, evidence can be found for the importance of these roles for personality beyond the Big Five. Research from the Mills Longitudinal Study suggests that investment in mothering relates to increased ego resiliency and decreased vulnerability (Paris & Helson, 2002), that marital commitment relates to changes in ego resiliency with time, and that both mothering and work investment relate to marital commitment (Pals, 1999). The Intergenerational Study shows that work investment, family investment, and community investment all relate to an achieved identity style during the life span (P. Cramer, 2004). Research also suggests that non-Big Five personality traits such as being prosocial and helpful, as well as more motivational characteristics of personality, relate to volunteerism on not only a demographic level but also a more psychological level (Clary et al., 1998; Finkelstein, Penner, & Brannick, 2005; Omoto & Snyder, 1995). In addition, research suggests a link between demographic and psychological investment in volunteerism and OCB (Finkelstein & Penner, 2004; Grube & Piliavin, 2000). Although a complete review of this literature is beyond the scope of this discussion, numerous other nomothetic and ideographic findings from various longitudinal studies, including those mentioned above, point to the importance of life events involving social investment to the development of personality and the maturation of identity during the life span (Agronick & Duncan, 1998; Helson et al., 1995; Helson & Moane, 1987; Peterson & Stewart, 1996; Stewart & Healy, 1989; Stewart, Ostrove, & Helson, 2001; Vandewater, Ostrove, & Stewart, 1997; Van Manen & Whitbourne, 1997). It is clear that future research should systematically investigate the relations between social investment and a broad array of personality constructs.

Finally, from a more sociological standpoint, to fully understand the genesis of social investment, we must understand the societal factors that relate to social investment. Although neither age nor gender moderated the relationship between personality traits and social investment, both may yet be important for understanding social investment opportunities in general, as would other demographic factors such as socioeconomic status. For example, the difficulties of being poor may hinder opportunities to socially invest. This can be seen in the reciprocal relationship between poverty and mental illness (Meich, Caspi, Moffitt, Wright, & Silva, 1999). People who are poor are more likely to become mentally ill, which in turn contributes to lower socioeconomic achievement in their own lives. Thus, the probability of social investing may decrease or be limited by barriers such as poverty. On the other hand, it

may not always be necessary to explicitly occupy a social role to feel as if one is socially invested. For example, one would assume that being forced to go overseas for military engagements would preclude a soldier from investing his or her parent role. However, previous research shows that people who simply consider the prospects of future social investments in work, family, and community also become more agreeable, conscientious, and emotionally stable with time (Roberts, O'Donnell, & Robins, 2004). We described this as holding on to a provisional identity. Therefore, holding on to a provisional identity in lieu of the actual experience may provide opportunities to realize a facsimile of social investment. Of course, the positive effect of a provisional identity may come about only through the eventual enactment of the roles that define that identity. If a person's opportunities are dramatically limited, they may eventually give up on their aspirations and become alienated from society.

It also may be the case that certain societies structure the nature of social investment differently. Although transitioning to work, marriage, and community roles appears to be universal, the nature of the expectations contained therein may be quite different across cultures. For example, collectivist cultures, being more interdependent, may expect more social vigilance, which may contribute to increases in neuroticism with the acquisition of adult roles (Okazaki, 1997). Both cross-sectional and longitudinal studies of the interplay of social investment and personality across different cultures would illuminate the potential moderating role of culture on these patterns. Finally, it may be possible for an individual to have negative experiences after socially investing in a role and then becoming embittered, which results in negative changes in personality, such as a decrease in emotional stability. For example, past research shows that experiencing a stressful and dissatisfying marriage is related to decreases in emotional stability (Roberts & Chapman, 2000). Thus, it is important to look at the quality of the social setting within which the investment is made to fully understand coincident personality change.

In conclusion, we have provided a thorough definition of the concept of social investment, which is the investment in and commitment to adult social roles. We have shown that the psychological commitment to these roles is associated with the personality trait domains of agreeableness, conscientiousness, and emotional stability. We hope that future research will continue to investigate the basic connection between personality traits and social investment established here and broaden this level of assessment to encompass longitudinal studies, cross-cultural research, and societal-level factors that shape social investment.

## NOTES

1. Where the analogy to Erikson's (1968) notion of identity crisis fails is that he focused almost exclusively on occupational roles. In the social investment framework, the process of identifying with and committing to a social role applies to all roles that people occupy.

2. Additional moderator analyses were conducted for gender and age for each domain of social investment. Neither demographic variable moderated any of the relationships between social investment behavior and personality and, thus, are not reported in the current review.

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