

PERSONAL CAPITAL AND EMOTIONAL INTELLIGENCE: AN INCREASINGLY IMPORTANT INTANGIBLE SOURCE OF ECONOMIC GROWTH

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Analyses done by dozens of different experts in close to five hundred corporations, government agencies, and nonprofit organizations worldwide have arrived independently at remarkably similar conclusions.... Their conclusions all point to the paramount place of emotional intelligence in excellence on the job—in virtually any job. [Goleman 1998, 5]

INTRODUCTION

The purpose of this paper is to provide an explanation for a part of economic growth that has heretofore been unexplained. In seeking to explain economic growth, economists have naturally turned first to the most tangible factors—physical capital, natural resources, and labor. Increasingly, however, they are turning to intangible or less tangible considerations such as human capital. Because a significant part of economic growth still remains unexplained, it is necessary and important to explore the role of the most intangible factors, those of a social and psychological nature. That is why this paper is concerned with personal capital formation and its contribution to explaining the previously unexplained growth in national output. This paper focuses largely on one type of personal capital formation, that due to improvement in emotional intelligence.

ECONOMIC GROWTH AND INTANGIBLE CAPITAL FORMATION

Let's start with the standard neoclassical approach to economic growth in which the economy is viewed as a production function. Using a version of this theory, Edward Denison [1962; 1974] and other economists have used growth accounting methods to estimate the sources of economic growth. In particular, they have used data on the growth of certain inputs and output to indicate how much of the output growth is accounted for by the growth of these different inputs. The unaccounted-for growth, the residual, is a measure of the magnitude of technological change as well as the effect of the unmeasured influences and mis-measurement [Maddison, 1995, 40-46]. Abramovitz has referred to the residual as our "measure of ignorance" [1993, 218].

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Despite some drawbacks, it is useful at least to begin with the standard approach because my intention is to reduce our ignorance (and the size of the residual) further by explaining about a number of inputs that have at best been little considered by economists.

In seeking to explain or account for a larger proportion of economic growth, economists have more and more included intangible inputs in their analyses, most importantly, human capital deriving from education and training. The non-economic and/or intangible aspects have received less attention in part because they frequently do not lend themselves to measurement. Insofar as evidence is available, there is reason to believe that non-economic intangible sources of growth are more important now than they were formerly [Abramovitz, 1993].

Consider the essential nature of what economists call capital. "Capital is lasting productive capacity that is produced and, subsequently, used by economic entities to achieve their purposes" [Tomer, 1999b, 1049].¹ For many, practically speaking, capital has meant tangible assets (factories, equipment, and so on), which are owned by businesses to produce goods and services to make a profit. As most of us now realize, this very specific and concrete meaning of capital is far too narrow. The importance of my broad, general definition above is that it allows us to conceive of many other things that can serve as productive capacity. Therefore, as the role of intangibles in economic growth has gained recognition, the term capital has increasingly come to refer to intangible factors such as the enhanced human capacities owing to education and training. Recently, some economists along with other social scientists (especially economic sociologists) have studied other factors which are even more intangible in nature.

The importance of the standard concept of human capital, in contrast to social and organizational capital, is fully accepted by mainstream economists. Although this acceptance and interest in human capital has occurred in the last forty years or so, the idea of human capital is far older. "Economists who considered human beings or their skills as capital include such well-known names in the history of economic thought as Petty, Smith, Say, Senior, List, von Thunen, Roscher, Bagehot, Ernst Engel, Sidgwick, Walras, and Fisher" [Kiker, 1966, 481]. Adam Smith [1937, 101, 265-66], for instance, explicitly recognized that just like expensive machinery, human skills and useful abilities can be acquired at a cost with the expectation of earning at least an ordinary rate of profit. These skills and abilities, however, are very different from tangible capital in that they are embodied in a person. Unlike tangible capital, human capital can not be removed or alienated from an individual to be sold.

Another type of intangible capital is social (and organizational) capital; both are the product of activities that create social relationships.² Despite their lack of recognition as capital by economists, social and organizational capital should definitely be considered types of capital because these social relationships provide lasting productive capacity that is used by economic entities to achieve their purposes. Both social and organizational capital are forms of human capital because their productive capacity is embodied in humans. The productive capacity is embodied, generally speaking, however, not in individuals *per se* but in the relationships or connections between people. A growing literature in economics and other social science disciplines

(especially sociology) attempts to document the contribution of various types of social capital to economic growth.³ It is beyond the scope of this article to review this literature.

PERSONAL CAPITAL AS A SOURCE OF ECONOMIC GROWTH

Is it possible to account for all or most of the variation in human economic performance using (1) individual endowments of the standard types of human capital and (2) the social and organizational capital endowments related to these individuals as explanatory variables? There is good reason to think the answer is no because there are other types of human capacity, such as personal capital, that must be considered. To begin our exploration of this new concept, let's first inquire into the nature and magnitude of individual differences in productivity.

Individual Differences in Productivity

Hunter, Schmidt and Judiesch [1990] find sizable variations in measured workplace output among employees, and the amount of this variability is positively related to the complexity of the job. They find, for example, that for routine clerical or blue-collar work the top one percent of workers produce 52 percent more output (valued in dollars) than the average worker. For jobs of medium complexity, the top one percent added 85 percent more value than the average performer, and for the most complex jobs such as insurance salespeople, account managers, lawyers, and physicians, the top one percent added 127 percent more value [Goleman 1998, 34-35, 336]. This variability suggests that firms, as well as colleges, have much to gain from selecting applicants likely to be high performers.

Traditionally, in their efforts to select high performers, businesses and colleges have relied greatly on school grades and intelligence tests. Unfortunately, as McClelland [1973] indicates, both of these have a very low correlation with job and life success. In McClelland's view, high job performance is frequently related more strongly to many other competencies than those indicated by traditional academic measures. He believes, therefore, that businesses and colleges should select applicants on the basis of competencies that have demonstrated a close relationship to the desired performance behavior, and should educate and train people to improve these competencies as opposed to improving general academic aptitude. Included among the non-scholastic competencies that McClelland thinks are highly related to success are (1) moderate goal setting, (2) patience, (3) ability to communicate emotions, (4) initiative, (5) ability to respond well in unclear situations, and (6) moral development [ibid., 9-12]. Economists acknowledge that the influence of such "personality" factors "in productivity is detectable and is rewarded by employers. But most economists, unlike psychologists, have taken the position that personality is either unobservable or unmeasurable" [Goldsmith, Veum, and Darity, 1997, 815]. Let's now examine the concept of personal capital that refers to these intangible competencies that economists and others have tended to ignore.

The Concept of Personal Capital

Personal capital is a kind of human capital because it relates to a capacity embodied in individuals. However, personal capital differs from standard human capital in that the human capacity involved is not the type developed by academic education or by the usual types of job-related training. The personal capital capacities are fundamentally different from cognitive intelligence or intellectual knowledge. Personal capital relates to an individual's basic personal qualities and reflects the quality of an individual's psychological, physical, and spiritual functioning [Tomer, 1996, 626-27; Tomer, 2001, 251]. Further, it mirrors one's internal biochemical balance, physical health and conditioning, psychological strengths and weaknesses, and purpose in life. A person's stock of personal capital is partly a product of one's genetic inheritance, partly a result of the life-shaping events that one has encountered, and partly an outcome of one's efforts to mature and to grow in nonintellectual ways. It is in part produced intentionally. Personal capital qualities are related to a person's capacity to work or consume in that they underlie the more specific capacities (standard human capital and consumption capital) that a person invests in to be qualified for work tasks or to be able to enjoy consumer goods. Moreover, certain personal capital qualities are a prerequisite for developing successful organizational relationships (social and organizational capital) [Tomer, 1999a, 46-48]. Personal capital capacities expand one's achievement possibilities.

Other authors have used the term personal capital, or similar terms, in sometimes different ways. Recently, Becker [1996, chapter 1] defines personal capital as a capacity deriving from a person's past consumption and personal experience; it is a capacity that determines one's ability to get satisfaction from consumer goods. His personal capital concept is what I, and Becker in earlier works, have referred to as consumption capital. Another author, Goleman [1998, 209], uses personal capital to refer to a person's "networks of personal contacts." This is different from my usage and is essentially the same as the concept of social capital used by sociologists. Goldsmith, Veum, and Darity use the term psychological capital to refer to "those features of personality psychologists believe contribute to an individual's productivity. These may include a person's perception of self, attitudes toward work, ethical orientation, and general outlook on life" [1997, 815]. Further, "a person's psychological capital is likely to govern their motivation and general attitude toward work" [ibid., 816]. As used by Goldsmith et al., the psychological capital concept, therefore, is similar to personal capital but somewhat narrower because it only relates to human psychological capacities.

In their book, *Personal Productivity*, Kendrick and Kendrick [1988] do not use the term personal capital, but they do explain about many ways in which people can invest in themselves, raise their productivity, and thereby accomplish more of their personal goals. In their chapter on "Investment in Self: Health and Safety," they explain how individuals can invest in their mental and spiritual health [ibid., Chapter 6]. For example, the Kendricks explain (1) how one's psychological difficulties might be overcome with or without the use of psychotherapy, (2) how one can strengthen positive thinking and build a positive self-image, (3) how a person can

recharge one's spiritual batteries, and (4) how one can take charge of one's life [ibid., 84-86]. These are all activities involving investments in what I call personal capital.

Emotional Intelligence and Emotional Competence

A very important component of personal capital that has received much recent attention is the human capacity called emotional intelligence. Goleman [1995; 1998] in his two books, *Emotional Intelligence* and *Working with Emotional Intelligence*, is particularly notable for defining, applying, and popularizing this concept. My use of emotional intelligence draws heavily upon his second book, which focuses on the important contribution that organization members' emotional intelligence makes in the workplace.

According to Goleman,

Emotional Intelligence' refers to the capacity for recognizing our own feelings and those of others, for motivating ourselves, and for managing emotions well in ourselves and in our relationships. It describes abilities distinct from, but complementary to, academic intelligence, the purely cognitive capacities measured by IQ. [1998, 317]

Emotional intelligence has five elements: self-awareness, motivation, self-regulation, empathy, and adeptness in relationships [ibid., 24]. These determine one's potential for mastering the twenty-five emotional competencies, the more specific human capacities essential for success in the workplace. Each of the five elements of emotional intelligence corresponds to a number of corresponding emotional competencies [ibid., 24-28]. Three emotional competencies are associated with self-awareness: (1) emotional awareness, (2) accurate self-assessment, and (3) self-confidence. See Table 1 for the complete list of emotional intelligences and their associated emotional competencies.

In contrast to IQ (or pure cognitive capacity), which remains relatively fixed throughout one's life, "emotional intelligence develops with age and experience from childhood to adulthood" and, through effort, can be improved at any age [John Mayer as quoted in Goleman 1998, 239-40]. For most people, emotional intelligence grows steadily with advancing maturity, particularly as people learn (1) to become more aware of their emotions, especially distressing ones, (2) to become more empathetic with others, and (3) to handle difficult social situations and relationships. The emotional competencies based on emotional intelligence involve "ingrained habits of thought, feeling and behavior" which can be learned and unlearned with effort and time [ibid., 243]. In the process of acquiring these habitual patterns, neural connections associated with these patterns are strengthened and become the dominant path for nerve impulses.

It is important to note that different kinds of emotional competence are required by different industries, organizations, and jobs [ibid., 28-29]. Thus, individuals who improve their emotional intelligence and emotional competence in ways that match the demands of their work situation can be expected to raise their job performance.

TABLE 1
The Emotional Competence Framework

<i>Personal Competence</i>	<i>Social Competence</i>
<u>Self-Awareness</u>	<u>Empathy</u>
Emotional awareness	Understanding others
Accurate self-assessment	Developing others
Self-confidence	Service orientation
	Leveraging diversity
	Political awareness
<u>Self-Regulation</u>	
Self-control	
Trustworthiness	<u>Social Skills</u>
Conscientiousness	Influence
Adaptability	Communication
Innovation	Conflict management
	Leadership
	Change catalyst
<u>Motivation</u>	Building bonds
Achievement drive	Collaboration and cooperation
Commitment	Team capabilities
Initiative	
Optimism	

From Daniel Goleman. *Working with Emotional Intelligence*. 1998, 26-27.

Spending time and effort on such improvements is the essence of what successful investment in personal capital involves.

A number of other authors define emotional intelligence somewhat differently from Goleman. For instance, Mayer and Salovey's [1997, 5] definition is more like a kind of intelligence in that it emphasizes thinking, perceiving, understanding, appraising, discriminating, and identifying emotion. Goleman's concept of emotional intelligence, in contrast, relates to the way people function emotionally if their functioning is at its potential or at least is not problematic. Weisinger's [1998] definition is relatively close to Goleman's. In his view, emotional intelligence is the intelligent use of emotions. Compared to Goleman's, Cooper and Sawaf's [1997, 273] definition gives greater emphasis to the higher aspects of human behavior, particularly aspects associated with business leadership. Their concept includes factors such as intuition, integrity, personal purpose, and creativity not emphasized by Goleman. Simmons and Simmons' [1997] approach to emotional intelligence is very different from Goleman's. In their view, emotional intelligence relates to 26 relatively invariant character traits. In subsequent discussion, this article relies largely on Goleman's concepts of emotional intelligence and emotional competence.

Emotional Intelligence and Economic Performance

How does high emotional functioning translate into the competencies that contribute to successful job performance? And how does lack of these competencies contribute to failure? In *Working with Emotional Intelligence*, Goleman [1998] explains in great detail how the presence or absence of the 25 emotional competencies is a

crucial determinant of specific kinds of work performance. To illustrate, let's consider a number of the emotional competencies listed on Table 1.

First consider trustworthiness, or the means of acting ethically, building trust through reliability and authenticity, and admitting mistakes [Goleman 1998, 89]. Its importance is indicated in the following:

Of the general managers for sales who've worked for me and washed out, the single thing they lacked most was trustworthiness," a senior vice president at a division of Automatic Data Processors told me. "In sales, it's trade-offs—I'll give you this if you give me a concession on that. It's an ambiguous situation, where you have to take someone's word for it. A field like finance—that's more science than art, it's more clear-cut. But in sales it's grays, so being trustworthy is all the more important. [ibid., 90-91]

The second competency considered is achievement drive. People with this competency are results-oriented, set challenging goals, and pursue information related to how to improve their performance [ibid., 113].

Consider a study of fifty-nine entrepreneurs, most of them research scientists, each of whom had taken advantage of an innovative technology to found a high-tech firm. Five years after establishing their firms, those who were highest in achievement traits (like seeking out feedback on their performance and setting goals) were the most likely to have flourished—they had an average increase in sales of \$1 million a year, increased the number of employees by fifty or more, or sold their company for a substantial profit. [ibid., 116]

Another competency is conflict management. People with this competence are able to negotiate and resolve disagreements, handle difficult people and tense situations, de-escalate conflict, and orchestrate win-win solutions [ibid., 178].

In a survey of retail buyers in department store chains, each of whom handled merchandise worth \$15 million to \$30 million, the style of negotiating was an accurate barometer of the health of the manufacturer-retailer relationship. Predictably, when negotiations were typically aggressive, revolving around threats and demands, it boded poorly for the future of the relationship; buyers ended up embittered and dissatisfied and often dropped the product line. But for those relationships in which aggressiveness was ruled out in favor of problem solving or compromise, the longevity of the relationship increased. [ibid., 181]

Finally, building bonds is a competence involving nurturing instrumental relationships. This includes cultivating extensive informal networks, building rapport, and maintaining friendships among work associates [ibid., 206].

Jeffrey Katzenberg, one of the three founders of the Hollywood creative company Dreamworks SKG, is a networker without equal. The motive for his manic flurries of calls is, mainly, just to stay in touch—not explicitly to ‘do business.’ But his telephone routine primes these relationships, keeping them fresh, so that when the business need comes along, he can call on them seamlessly: make a proposal, pin down a deal. In the entertainment industry, relationships are the key to doing business, because the projects—a film, a TV series, an interactive CD-ROM—are all short-term, goal-focused, and time-limited. They require knitting together an instant organization, a pseudo-family of director, producers, actors, and production people, all of whom dissolve back at the end into a loose network of potential players. Katzenberg keeps a web-like thread of connection out to everyone so that he can reel them in as needed. [ibid., 206-207]

Each and every occupation has a unique profile of emotional competencies that, along with cognitive intelligence, education, training, mentoring, and supervising, would be necessary for excellent performance. Because of the relative importance of emotional competencies in successful job performance, it makes sense for companies to assess jobs to determine their emotional competence requirements and to recruit employees with these competencies or to help existing organization members develop the needed competencies [ibid., 251, 259-62]. Increasingly, this is being done in systematic ways. “Assessing the competencies that make someone outstanding at a particular job has become something of a mini-industry, with practitioners using a range of well-validated methods to tease out the ingredients of star performance” [ibid., 260]. Consider strategic planners. It has always been thought that the key ingredient for their success is “analytical and conceptual thinking,” (that is, cognitive ability).

It turns out there’s more to success as a planner than brainpower. Emotional skills are essential as well. Studies reveal that the *outstanding* strategic planners are not necessarily superior in their analytic skills. Instead the skills that raise them above the crowd are those of emotional competence: astute political awareness, the ability to make arguments with emotional impact, and high levels of interpersonal influence. [ibid., 259]

Presumably businesses with the aid of this kind of assessment can be more successful in their recruiting and developing efforts, and therefore, can be more successful in adding to their firm’s stock of personal capital.

There is good reason to believe that emotional intelligence matters not just for individual job performance but the performance of the organization as a whole. Outstanding companies have many well-developed organizational competencies similar to Goleman’s list of emotional competencies (recall Table 1). These organizational competencies as a group are essentially the “organization’s collective level of EI (emo-

tional intelligence)” [ibid., 297-301]. It is the latter that “determines the degree to which that organization’s intellectual capital is realized—and so its overall performance” [ibid., 299; see also Druskat and Wolff, 2001].

Emotional intelligence is just one, albeit very important, component of personal capital. A variety of other work-related human capacities are included under the rubric of personal capital. These others are personal capital capacities not related to emotional functioning or emotional management. It remains a subject for further research to define carefully the nature of these other capacities, to indicate how they differ from emotional intelligence, and to indicate how they contribute to job or organizational performance.

It is important to mention that only recently have some firms begun to pay significant systematic attention to personal capital capacities such as emotional intelligence, and therefore, to make the kind of efforts necessary to raise their competitive performance through investments in personal capital. Firms, for example, are using psychological testing to identify the emotional intelligence of prospective employees and employing search firms that explicitly screen job candidates for desired types of emotional intelligence. Earlier, little or no effort was made to incorporate these considerations in the firm’s hiring process or the human resource development process. It is also important to note that more and more people on their own are making efforts to recognize their strengths and weaknesses and, as a consequence, are making personal capital investments in themselves through formal and informal experiences that develop their desired personal qualities. In some cases, people are correcting emotional intelligence deficiencies (for example, overcoming addictions, attachments, psychological hang-ups, and so on). In other cases, they are seeking various kinds of personal growth or maturity. Some of the self-help activities involved are targeted carefully to improve job capabilities; others are not. The specific activities involved range widely from going to seminars and workshops, to reading books and listening to tapes, to engaging in psychotherapy. In any case, what in the past was either not done or was done in a hit or miss way is increasingly being done in a big and systematic way. One could argue, therefore, that in the past it made little sense for economists to consider personal capital as a source of economic growth. Now that firms and people are devoting significant resources to personal capital formation and that personal competence has become recognized as critical to successful business performance, however, this argument no longer makes sense. Economists today can not afford to ignore personal capital formation in their investigations into the sources of economic growth.

MEASURING THE CONTRIBUTION OF PERSONAL CAPITAL TO ECONOMIC GROWTH

Advocates of neoclassical and endogenous growth theories, while differing in their theoretical perspectives, have sought to measure the most important contributors to economic growth using similar cross-country empirical analyses. The basic approach has involved regressing countries’ rates of growth of real GDP per capita over long periods of time on a variety of key explanatory variables. While none of the variables

used by Barro [1997], or other economists for that matter [Mankiw, Romer, and Weil, 1992], directly or explicitly reflect personal capital or emotional intelligence, Barro's analysis is notable for using a life expectancy variable reflecting health status and the general quality of human capital and three regional variables for two low growth areas (sub-Saharan Africa and Latin America) and one high growth area (East Asia). Barro [1997] and Barro and Lee find that although school attainment contributes to growth, it is a less important contributor than life expectancy [1994, 43]. Life expectancy's strong positive relation to growth is apparently because it reflects not only good physical health but desirable behavior owing to good work and personal habits and other competencies [ibid., 18]. It would not be surprising, therefore, if life expectancy was picking up some personal capital elements. Barro's regional variables might also pick up some personal capital aspects. This would be the case if there were, say, emotional intelligence patterns common to regions. Could the low growth performance of sub-Saharan Africa and Latin America and the high performance of East Asia reflect the emotional intelligence of the people in these regions? One of the geographical variables used by Sachs and Warner [1997] is tropical climate. While places with tropical climate may be "associated with poorer soils and higher infectious disease endemicity" [ibid., 186], they might also be associated with lower emotional intelligence.

In their empirical study of economic growth, Sachs and Warner report that these "cross-country growth studies are plagued by left-out-variable errors of great importance" [1997, 186]. This is indicated, for example, by Barro's [1997, 13] regression equations with R squared values not exceeding 0.60, suggesting that there is a need for additional and better independent variables to obtain greater percentage explanation of the dependent variable, the growth rate. One area, cited by Sachs and Warner, which is especially in need of better measures and understanding is human capital accumulation in poorer countries [ibid., 188].

In his analysis of human capital and growth, Paul Romer [1990, 253] breaks down workers' human capital endowment into three types of skills that are relevant for production: (1) physical skills such as eye-hand coordination and strength, (2) educational skills acquired in primary and secondary school, and (3) scientific talent acquired in post-secondary education. Surely there are more than three relevant major types of human capital skills. It would certainly make sense to add to the skill list the competencies included under the emotional intelligence rubric. It is useful to consider all of these human capital skills to be a kind of "wetware." Wetware, as distinguished from hardware and software, consists of "the things that are stored in the 'wet' computer of the human brain" [Romer 1994, 143].

In connection with measuring the intangible contributors to economic growth using cross-country data, Knack and Keefer's [1997] study is important to note. They find that two social capital variables, trust and civic cooperation, have a strong positive and significant association with the rate of growth of per capita income for a sample of 29 countries. Among the other independent variables in their regression equations are initial GDP, two human capital (education-related) variables, and an investment variable. If the growth contribution of social capital can be measured in this way, presumably the contribution of personal capital can be as well.

Hall and Jones' thesis is that "differences in capital accumulation, productivity, and therefore output per worker are driven by differences in institutions and government policies, which we call social infrastructure" [1999, 1]. A social infrastructure conducive to economic growth is one that encourages desirable efforts and discourages undesirable efforts by enabling individuals to "capture the social returns to their actions as private returns" [ibid., 2]. Hall and Jones' cross-section "results indicate that differences in social infrastructure account for much of the difference in long-run economic performance throughout the world, as measured by output per worker" [ibid., 4].

One obvious difficulty involved with measuring the personal capital contribution to economic growth is identifying the best measures of investment in personal capital and obtaining data on these. It would naturally be desirable to have one or two overall personal capital measures. However, this is problematic because, for example, emotional intelligence alone has five main elements with 25 specific associated emotional competencies. If these elements and competencies were highly independent of each other, this would be a significant difficulty. One possible source of personal capital data is the assessments of people's attitudes, interests, motivations, preferences, orientations, and competencies deriving from the type of "tests" used to determine people's suitability for different types of careers. Psychological tests provide another possible source of data to the extent that they measure aspects of a person's self-discipline, honesty, empathy, key social skills, and so on. In the absence of satisfactory test data for many countries, one would have to rely on non-test proxies. Ideally, adequate proxy data could be found among the nation's social indicators. Resolving this data difficulty is beyond the scope of the present research.

EVIDENCE FROM STUDIES EXPLAINING EARNINGS

While a definitive empirical analysis indicating the size of the personal capital contribution to economic growth is probably not possible at this time, results from a number of past empirical studies can give us an idea of the importance of this contribution. In general, these studies have found that certain non-cognitive personal traits are strongly associated with differences in earnings among workers. First, Filer [1981] explores the extent to which variations in affective skills (or personality traits) as well as cognitive skills (both human capital variables) explain worker wage differences. Filer's [ibid., 378-79] data on personality traits are drawn from a consulting firm's psychological evaluations of job candidates and current employees of its client firms. Ten personality traits are used to explain workers' monthly salaries from their primary job [ibid., 383]. Filer [ibid., 404, 407] finds that adding affective skills to the standard wage equation, which controls for many socioeconomic and demographic considerations, "adds significant explanatory power" without reducing the significance of the other variables in the equation. The most important affective skill was drive, followed by ascendance (desire to "be on top"). Third and fourth were sociability and friendliness, followed by masculinity, objectivity, and restraint [ibid., 390-95]. These affective skills or personality traits were a more important explanation of wages for workers with higher education levels [ibid., 401].

Next is the research of Duncan and Dunifon on the long-run effects of worker motivation on wages. They explore the relationship between a number of social psychological traits observed in men aged 21 to 29 and their labor market attainments 15 to 25 years later. In one analysis [Dunifon and Duncan, 1998], they focus on two motivational measures, challenge vs. affiliation and sense of personal control. Controlling for many factors, they find that the two motivational variables are highly significant predictors of these men's wages in later periods and that the explanatory power was about as strong as that for years of completed schooling [ibid., 40-42]. In their other analysis [Duncan and Dunifon, 1998], they use four motivational measures or "soft skills," challenge vs. affiliation, personal efficacy, fear of failure, and trust/hostility. In a regression equation that utilizes years of schooling and cognitive skills and controls for a variety of social and background factors, they find that individuals with an orientation to achievement and self-efficacy earned considerably higher wages 20 to 25 years later [ibid., 146]. The motivational measures "added nearly as much to the explanation of long-run earnings differentials as did years of completed schooling" [ibid.].

In a similar subsequent study, Dunifon and Duncan join with Brooks-Gunn [2001] to examine another key non-cognitive personal characteristic, organization and efficiency, as operationalized by data on the cleanliness of a worker's dwelling. The authors "argue that keeping a clean and organized home reflects an overall ability and desire to maintain a sense of order in a wide range of life activities" [ibid., 150]. Controlling for socioeconomic status background and including cognitive ability, completed schooling, and other factors, the authors find a highly significant relationship between the cleanliness/organization variable and workers' wages 25 years later. For example, they find that "a one-standard-deviation increase in the clean-home measure is associated with a 13-percent increase in average hourly earnings 25 years later, which is slightly larger than the estimated impact of an additional year of schooling" [ibid., 153]. They also find a highly significant relationship between cleanliness/organization and the wages of these workers' children 25 years later. The authors conclude that "these results suggest that models predicting labor-market success and educational attainment would be strengthened by the addition of a wider range of so-called 'noncognitive' factors" [ibid., 154].

Bowles, Gintis, and Osborne [2001] provide a critical evaluation and summary of studies explaining earnings, giving special attention to the non-cognitive determinants of earnings. In general, they find that what successful parents pass on to their children goes beyond superior schooling, inherited wealth, and genetic inheritance of cognitive ability. They suggest that the unexplained variance of earnings in conventional earnings equations can be explained by "unobserved skill," particularly non-cognitive skills/traits, which are difficult to measure [ibid., 1140]. Moreover, based on their review, they find that "seemingly irrelevant personal characteristics ... even whether one keeps a clean house, are often robust predictors of earnings" [ibid., 1138]. Among the skills/traits that have been considered by researchers are attitude, motivation, fatalism, self-directedness, impatience, integrity, conscientiousness, perseverance, and leadership. The authors find reason to believe that a set of traits they call "incentive enhancing preferences" are especially important determinants of earn-

ings [ibid., 1144]. Among this set of traits are low time discount rate, predisposition to truth telling, identification with the objectives of the owners and managers, high marginal utility of income, and low disutility of effort [ibid., 1145]. Such traits are thought to be valuable to employers because they attenuate the costs of enforcing employment contracts in situations where workers have effort discretion. In general, the studies reviewed provide much evidence that a variety of non-cognitive skills/traits are significant determinants of worker earnings.

If the studies cited above are right that non-cognitive skills/traits are important, and neglected, determinants of earnings, it is not unreasonable to infer that investment in these non-cognitive human capital factors ought to be important in explaining economic growth. The non-cognitive skills/traits considered in existing studies do not encompass all the elements of emotional intelligence, but they do include some of the more important emotional intelligence elements. These empirical studies, therefore, provide general support for the thesis that investment in personal capital, especially that related to emotional intelligence, is an important determinant of economic growth.

THE RELATIONSHIP BETWEEN PERSONAL CAPITAL AND SOCIAL CAPITAL

In some situations, personal capital and social capital are complements; in other situations, they are substitutes. When successful social capital formation requires that the individuals involved possess certain types of personal capital, personal capital can be considered a complement to social capital. With respect to organizational capital, which is a type of social capital, pre-organizational capital is the term I use in my earlier writing to refer to the type of personal capital qualities antecedent to successful organizational capital formation [Tomer, 1999a, 46-48].

An individual's endowment of ... pre-organizational capital qualities determines a person's generalized capability for being successfully joined to an organization. Individuals with a high endowment of these qualities are expected to develop a more effective psychological contract with the organization, develop more cooperative, trusting, and efficacious relationships with other organization members, and make deeper commitments that integrate their own purposes with those of the organization than do others with comparatively low endowments. [ibid., 47]⁴

Among the pre-organizational capital qualities whose presence is critically important if organizational capital is to be built and maintained are certain of Goleman's emotional competencies. Included among these are the last five social skills: (1) leadership, (2) change catalyst, (3) building bonds, (4) collaboration and cooperation, and (5) team capabilities [Goleman 1998, 27]. Two of the empathy competencies, (1) understanding others and (2) developing others, are particularly important. And a variety of other qualities and virtues including (1) self-control, (2) trustworthiness, (3)

conscientiousness, (4) commitment, and (5) optimism are important [ibid., 26; see also Tomer 1999a, 46-47]. These are the types of personal capital qualities that when present, especially in key people such as organization leaders, determine the organization's capability for forming and maintaining successful organizational relationships, thus indicating the complementary nature of personal capital and social capital.

Personal capital and social capital can be substitutes in two senses. First, suppose the organizational capital formation has gone very well and the organizational relationships developed provide plenty of structure, focus, and comfort to organization participants. Such relationships are likely to calm people's negative emotions that might otherwise contaminate organizational efforts. It is in this sense that strong social capital substitutes for personal capital deficiencies of organization members. Second, suppose the organization's workers have strong personal capital qualities and have a low likelihood of manifesting any negative, contaminating emotion. These workers have less need for the kind of social capital that calms and structures their interactions because they are more likely to cooperate and coordinate their efforts spontaneously. Their strong personal capital, therefore, is able to substitute to an extent for investment in social capital.

IMPLICATIONS

As indicated earlier, there are important reasons to believe that personal capital formation has in recent years become a significant part of total capital formation in economically advanced countries. This theme is echoed by Goleman,

The globalization of the workforce puts a particular premium on emotional intelligence in wealthier countries. Higher wages in these countries, if they are to be maintained, will depend on a new kind of productivity.... As business changes, so do the traits needed to excel. Data tracking the talents of star performers over several decades reveal that two abilities that mattered relatively little for success in the 1970s have become crucially important in the 1990s: team building and adapting to change. And entirely new capabilities have begun to appear as traits of star performers, notably change catalyst and leveraging diversity. New challenges demand new talents. [1998, 9-10]

Despite the increasing importance of personal and social capital for business performance, several trends suggest that countries such as the United State are in some respects not meeting this challenge. Even though test scores indicate that children's average IQ scores have gradually risen significantly over the last eighty years, there is evidence that from the mid 1970s to the late 1980s children's emotional intelligence was steadily worsening, a decline shared by all socio-economic groups in many countries [ibid., 11-12]. According to Putnam [1995a; 1995b], there is also significant evidence that America's stock of social capital declined over the last generation. Could it be that the increasing intentional investment in personal capital and social capital has been to counteract the growing "natural" deficiencies in these human capacities?

Does it make sense for government to play a role with respect to personal and social capital formation? According to Kuznets [1971, 346-47], the government needs to play a crucial supplementary role to foster economic growth as an entrepreneur or organizer of the “socially required infrastructure” and as a facilitator of adjustment in economic and social institutions. With respect to social capital, Putnam is explicit, “High on America’s agenda should be the question of how to reverse these adverse trends in social connectedness, thus restoring civic engagement and civic trust” [1995a, 77]) Thus, Putnam [1993b, 42] favors government efforts to revitalize the U.S. stock of social capital. Presumably, a good case could also be made for a government role to encourage the development of certain key types of emotional competence.

Personal capital and social capital are not just important for understanding the economic performance of advanced economies. These concepts are also important for understanding whether less developed countries are likely to “take off” on the path of sustained economic growth. Some lesser developed countries may “naturally” have the kind of culture that fosters the development of, for example, the types of emotional intelligence critical to initiating the economic growth process. Other lesser developed countries may naturally have important deficiencies in this regard. According to Ezeala-Harrison, “human factor depravity” deriving from past colonial economic exploitation and current lack of leadership is an extremely important reason why so many lesser-developed countries remain underdeveloped. For satisfactory economic and social development, the basic human factor attributes such as “honesty, respect for the rule of law, individual innate self-discipline, accountability, and commitment to patriotic and selfless efforts” must be present [1995, 3]. “*Human factor depravity* ... occurs as society fails to instill such ideals as honesty, respect for the rule of law, individual innate self-discipline, and social accountability into the basic training and development of its human resources” [ibid., 4]. It seems that human factor depravity can be understood as a deficiency of a variety of personal capital, and perhaps social capital, capacities. A key part of overcoming lesser-developed country’s economic underdevelopment, therefore, is making the appropriate investments in personal and social capital.

CONCLUSIONS

This paper has made the case that personal capital formation is a source of economic growth, which is increasingly important. The soft nature of intangible inputs, like personal capital, the difficulty of measuring them, and their interrelationship with psychological and social processes which are normally outside the scope of economic inquiry are no doubt important reasons why economists have in the past ignored their contribution. Now, however, as explicit investment in personal capital is increasing, and its contribution to economic performance has become more and more evident, economists can no longer afford to neglect the economic role of personal capital. This is especially true now that Goleman’s writings have enabled us to see very clearly that our management of our emotions, our ability to motivate ourselves, and our social skills are in most cases a more important determinant of our work performance than our IQ, intellectual preparation or task training.

Very important research remains, especially empirical research. Among the important questions are the following. Is it possible to measure accurately the stocks of personal capital? What portion of the rate of economic growth can be explained by including these stocks in the analysis? What are the important trends in personal capital formation? How are these trends likely to change in the future? Based on the answers to these questions recommendations for government policy can be made. Important government initiatives to encourage personal capital formation may be required for a nation to achieve its economic growth goals, to maintain its business competitiveness, or to become economically developed.

NOTES

1. For a similar definition, see Dollahite and Rommel [1993, 28].
2. Social capital has been defined more specifically in a variety of ways by different researchers; see Tomer 1999b.
3. With regard to organizational capital, see Tomer [1987, Chapter 4]; with regard to social capital, see, for example, Putnam 1993a, Helliwell and Putnam [1995], Fukuyama [1995], Knack and Keefer [1997], and La Porta et al. [1997]
4. One should note that people's personal (pre-organizational) capital endowment is distinctly different from the actual relationship (the bonds or connections between people) developed, i.e., the organizational capital formed.

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