

## **I Think I Can!** **Does *The Little Engine That Could* Matter?**

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### **Abstract**

Early work by psychologist David McClelland regarding the childhood formation of the need to achieve in a country and later economic growth sought to solve one of the major economic development puzzles. One of McClelland's findings showed a relationship between the frequency of themes of achievement found in literature read by children and later economic development. Other researchers explored, denied, and buttressed the McClelland finding. Today, U.S. organizations are promoting early reading programs that include stories that emphasize achievement. Early evidence suggests the programs affect academic performance, but will they affect achievement? And will that achievement promote economic growth or stagnation? Institutions and their related incentives speak to these questions.

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### **I. Introduction**

In 1954, Platt & Munk published *The Little Engine That Could*, a children's story written under the pseudonym of Watty Piper. The basic story about optimism, self-determination, and success brought by dint of hard work had been around for decades. Its true authorship is unknown. Indeed, the story may simply be part of a long oral tradition. Whatever the origins, *The Little Engine That Could* is part of the American ethos. The story promotes traits that are fundamental to personal achievement including belief that hard work, persistence, and optimism will lead to success. This is the stuff

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commonly seen as entrepreneurial raw material. But do *The Little Engine That Could* and other children's stories of the same genre really matter?

Research by Harvard psychologist David McClelland (1961, 1965) suggests that, generically, *The Little Engine That Could* may matter a lot. In 1961, McClelland published *The Achieving Society*, a book that reported research on his lifelong project: an investigation in human motivation. McClelland's project identified a linkage that seemed to connect a country's future income growth to themes of achievement found in that nation's children's literature. The literature themes are endogenous to the society in which they are found and reflect and reinforce the values deemed important by that society. Put another way, the argument is as follows: the world is a result of purposeful human behavior, even to the point of the choices of stories read to or made available to be read by children.

The scientific discovery that literature linkages may be critical to survival and wealth creation should lead us to expect that ordinary people already know this. We should expect to find people systematically telling stories about achievement to their children, unless there is little hope of economic growth, change, and achievement in their societies. In those cases, it would seem that parents would teach related survival skills, which might have nothing to do with achievement in this life. Put another way, the definition of achievement varies with culture and situation.

The identification and adoption of survival values is critical here. In her essay on objectivist ethics, Ayn Rand reminds us that when compared with other animals: "Man has no automatic code of survival. He has no automatic course of action, no automatic set of values" (Rand, 1961, p.8). And what might be man's ultimate purpose? Rand suggests that in her view "productive work is the central purpose of a rational man's life, the central value that integrates and determines the hierarchy of all his other values" (Rand, 1961, p.14). In a sense, Rand suggests logically that man must work to survive. But how does this or any other survival code get written into young minds?

Research by Nobel Laureate James Heckman (2006) that focuses on learning by preschool and older children is relevant here. Heckman has shown that the rate of return to education efforts is highest for preschool children and that the return falls from that point to advanced adult education. In other words, programs that

actually bring about early reading will have the highest return of all. As Heckman puts it:

[E]arly learning confers value on acquired skills, which leads to self-reinforcing motivation to learn more, and early mastery of a range of cognitive, social, and emotional competencies makes learning at later ages more efficient and therefore easier and more likely to continue. Early family environments are major predictors of cognitive and noncognitive abilities. Research has documented the early (by ages 4 to 6) emergence and persistence of gaps in cognitive and noncognitive skills. Environments that do not stimulate the young and fail to cultivate these skills at early ages place children at an early disadvantage. Disadvantage arises more from lack of cognitive and noncognitive stimulation given to young children than simply from the lack of financial resources (Heckman, 2006, p.1900).

Heckman refers to “self-reinforcing motivation” in his statement, and his findings relate to Rand’s point about discovery of values. Heckman’s findings strengthen the case for finding significant community efforts to connect children to books. McClelland’s findings predict that, depending on the social context, one of the books will be from a category that includes stories like *The Little Engine That Could*, provided, again, that progress and achievement are community norms.

In 1996, country singer Dolly Parton launched a program using private funds to provide, at no charge, a children’s book mailed monthly to preschool children in Sevier County, her home in Tennessee (Dolly Parton Imagination Library, 2009). To be on the mailing list of her Imagination Library, some adult had to agree to be a child’s reader. To enter the program, a community organization had to bring in matching money. Generally the community support has come from private donors, including civic clubs, industry, and foundations that seek to enrich learning for disadvantaged children. Parton accepts no government money. Her local program was so successful that in 2000 she opened her Imagination Library to the world. In 2009 alone, Parton’s program mailed 6.2 million books to children in 1,068 participating communities located in 49 states. The books included in the program are selected by children’s literature

specialists. Watty Piper's *The Little Engine That Could*, Dolly Parton's personal favorite, is the first book mailed once a child is enrolled.<sup>1</sup>

Is there a systematic connection between books like *The Little Engine That Could* and human achievement? Does McClelland's research hold up when examined under the economist's microscope? Is there a way to build a social mechanism that will enhance opportunities for young children to become engaged with early reading and encounters with achievement motivation? And, if more children read motivating stories, can we be assured of an enhanced future outpouring of prosperity, all else equal?

This article addresses each of these questions and is organized as follows: The next section describes McClelland's research project, its findings, criticism of those findings, and results of examination of his data by economists. Section III reports on the work of Dolly Parton's Imagination Library and similar programs, and summarizes assessments of the programs. A final section addresses the linkage between more reading and more prosperity and offers brief closing thoughts.

## II. The Achieving Society: Background and Assessment

In *The Achieving Society* (1961), David McClelland explains how he and his colleagues developed a way to measure three kinds of human motivation. He called his better-known index of psychological need N-Achievement; the other two indexes of need were the need for affiliation with other people, N-Affiliation, and the need for power over others, N-Power. McClelland and his researchers developed country indexes and rankings with respect to these psychological needs by examining samples of children's literature, books read by second and fourth graders in the early school years. McClelland assumed that the evolved stories read to and by young children contained rules for living and values that a society of people wished

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<sup>1</sup> Earlier, in 1966, Margaret McNamara organized a reading program in Washington, D.C., that soon involved 60 public schools (Reading is Fundamental, 2010). Her organization, Reading is Fundamental (RIF), attracted federal support and eventually received \$25 million annually to fund a book distribution program. In 2009, RIF distributed books to 4.5 million children and families in locations nationwide. In 2010, the Obama Administration removed RIF funding from the proposed 2010-2011 budget.

to pass from one generation to the next.<sup>2</sup> In the sense that culture is social memory, children's stories may be the ultimate distillation of survival values. N-Achievement had to do with motivation for setting high standards, working hard, and doing a good job. Where hope and achievement were common norms, children who would survive may have had good genes and habits of life that reflected good memes.<sup>3</sup>

Memes, a concept developed by Richard Dawkins (1989), are efficient bundles of survival knowledge transmitted across generations of people. For example, values that relate to the importance of thrift, hard work, and promise keeping may be transmitted in memes found in songs, poems, religious parables, and children's stories. When considered in terms of McClelland's need for achievement, memes conveying the importance of self-reliance and hard work may be found in the *The Little Red Hen* (1954). Memes promoting the need for affiliation, which is to say to be accepted and a part of a group, may be seen in *The Ugly Duckling* (Andersen, 1999). And memes that promote the need for power may be found in *Jack and the Beanstalk* (2002).

McClelland and his associates developed the three indexes for a sample of 23 countries for the years 1920–1929 and 40 countries for 1946–1955. After assembling a large sample of books, McClelland and his team randomly selected some 20 books for each country, had the books translated and transposed into a common format, and then had each book scored for the three psychological needs. (McClelland, 1961, p.75). He then linked the scores to growth in national income and its proxies (McClelland, 1961).<sup>4</sup>

I have taken McClelland's achievement data for the two periods he analyzed and produced scatter plots with growth in real GDP to show the relationships he discovered. The first of these, Figure 1, maps his 1925 N-Achievement score into a measure of real GDP

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<sup>2</sup> The idea of evolved rules for survival is central to F.A. Hayek's explanation of human behavior, which speaks about instinct and reason. For discussion, see (Hayek, 1988, p.12).

<sup>3</sup> For discussion, see Dawkins (1989, p.186). Dawkins is the developer of the concept and the associated word. He saw memes as a counterpart for genes. In a real sense, McClelland and fellow researchers get involved in counting the occurrence of memes when they examine children's literature and measure the achievement content.

<sup>4</sup> Later, McClelland focused on entrepreneurship and success in business (McClelland, 1965; Tucker, 1988).

growth roughly 25 years later. I have labeled country data points. On inspection, it seems that World War II may have disrupted the pattern that might have formed otherwise. Even so, it is possible to detect some observations that seem to support a positive relationship between N-Achievement and future income, but alas one must be careful when attempting to run regressions by sight. After all, there are many *ceteris paribus* variables to consider when comparing data points from the country sample.

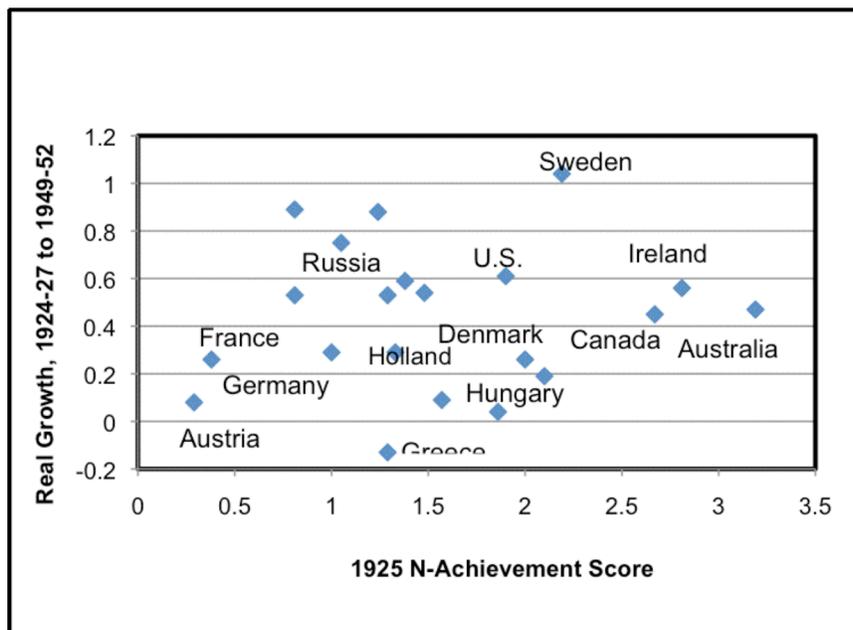


Figure 1: N-Achievement 1925 and real per capita GDP growth 1924–1927 and 1949–1952.

The scatter plot for the second period McClelland's data covers has the 1950 N-Achievement score mapped to GDP growth across the years 1950 to 1975. This time, the pattern is more supportive of the motivation story. Still, caution must be exercised. I show the data in Figure 2.

There was early criticism of McClelland's method by economist Sayre Schatz (1965, p.236), who said: "[I]t is my belief that McClelland, like many other scholars, has become so attached to his own hypothesis that he has unconsciously selected and used data in a way designed to support rather than test his theory." Schatz

questioned McClelland's use of electricity generated and consumed as a measure of economic growth and progress instead of using national income or other more traditional economic measures. McClelland responded to the criticism in the same article (Schatz, 1965, p.242–45), pointing out that national income data that held purchasing power constant were not consistently available for all the study countries at the time of his study and arguing that electricity consumption might be a better measure of economic well being and modernization, which was important to his project.

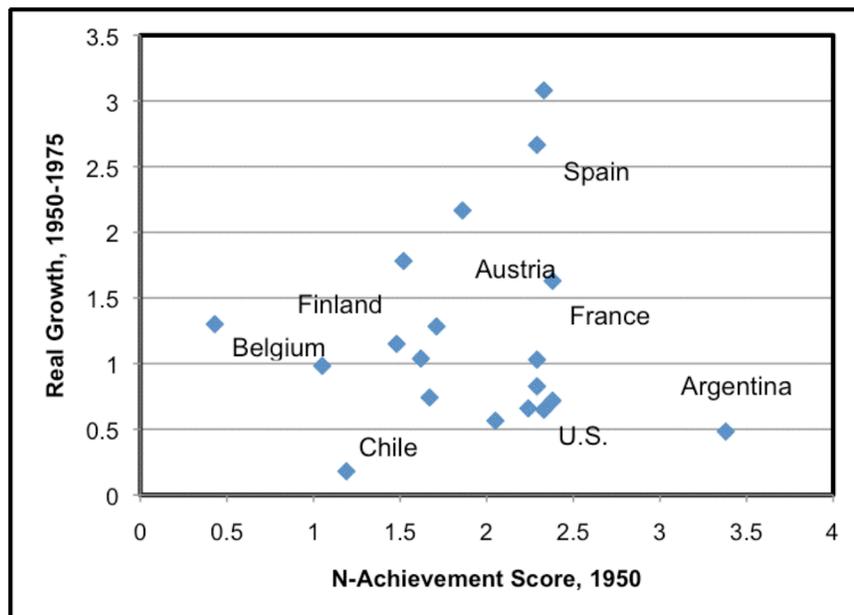


Figure 2: N-Achievement 1950 and real per capita GDP growth 1950–1975.

Mazur and Rosa (1977) developed regression models in an attempt to replicate the McClelland findings, but were unsuccessful. Frey (1984) probed in a different way and examined relationships as between McClelland's N-Achievement index and economic growth for the original sample of countries. Frey could not replicate the complete McClelland findings, but did find a significant relationship that supports the notion that N-Achievement is associated with future economic growth. On the other hand, Gilleard (1989) used World Bank data on income growth differentials across a sample of countries in an effort to test the N-Achievement thesis, but found a

negative relationship. Lewis (1991) also attempted to replicate McClelland's findings but with improved data for income and other variables, as suggested in McClelland's original work. Lewis was able to substantiate the 1925–1949–52 results but did not find statistically significant relationships for the 1950–1975 period. Tekinor (1980) used the three McClelland indexes as arguments in statistical models for explaining growth in real GDP and investment in the original McClelland country sample. He found the achievement motivation index to be statistically significant and positive in explaining growth in GDP and investment.

Mikk (2004) reviewed literature that has examined and tested the McClelland achievement motivation story. The results for new country samples and time periods is not impressive, but micro-level findings that involve entrepreneurial success and achievement motivation scores are impressive. For example, Mikk reports on studies by others involving entrepreneurs in Singapore and Jordan in which the conventionally measured success of their enterprises was mapped statistically to traits of the individual entrepreneurs. Achievement motivation measured by different psychological instruments was strongly correlated with business success. Finally, in a more recent econometric study, Beugelsdijk and Smeets (2008) developed models for the McClelland countries that adjust for language, Western Europe versus Eastern, Protestant versus other religions, levels of investment, and levels of educational attainment. In all of their work, the coefficient on McClelland's N-Achievement index is either not significantly different from zero or negative.

Of the various statistical studies, those of Katherine Freeman (1976, 1980, 1985) provide the strongest support for McClelland's argument. Her work speaks directly to Schatz, Lewis, and Mikk's criticisms in that she reconstructs the McClelland data and uses a Cobb-Douglas labor-capital growth function to estimate real net national product across the original McClelland country sample. Freeman identifies the difficulty with McClelland's correlation analysis:

[I]t is hazardous to draw conclusions from a simple correlation between n Achievement level and economic growth. Omitted is the consideration of other economic variables which contribute significantly to economic growth, such as changes in capital stock and labor. Moreover,

economists would be interested in knowing the magnitude of the contribution of this new dimension to economic growth in addition to the direction of the relationship (Freeman, 1976, p.819).

Freeman creatively substitutes electricity consumption for capital in her model and forms two estimating equations that include capital, labor, and a form of the index (Freeman, 1976, p.822–23). The first includes McClelland's N-Achievement index as a technology index. The second adds the N-Achievement index for each country as a third factor of production. The second model, which gave the superior result, has the effect of accounting for the quality of labor in the economy in terms of achievement motivation.

In her robust estimates that relate McClelland's 1925 N-Achievement score to 1950 net national product, Freeman finds the score to be positive and significant at the 99.5 percent confidence level. Each of the remaining variables is significant at the 99.5 percent level with the predicted signs. The estimating equations explained 92 percent of the variation in output across the sample countries. In additional work, Freeman (1984) examined the relationship between N-Achievement and the extent of welfare programs across a sample of countries. The achievement score was found to be significant and negative in explaining growth in welfare programs across countries. When N-Affiliation is used in the model, the association with welfare programs is positive and significant. One can infer that a strong community presence of the affiliation meme accommodates a welfare state's survival. Taken together, Freeman's findings suggest that societies dominated by free market processes and institutions will more readily promote achievement motivation; those that are more dominated by bureaucracies and non-market activities may emphasize literature and other memes that promote affiliation and power.<sup>5</sup>

In summary, the results of extensive empirical testing of McClelland's thesis yields a mixed bag but perhaps enough positive evidence to support the common sense logic that somehow ideas transmitted to children matter in the formation of habits that may

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<sup>5</sup> Engeser, Rheinberg, and Möller (2009) seemed to find this result in their schoolbook study of the occurrence of the theme of achievement in two German states with very different economic conditions. Bremen, with low economic performance, had fewer achievement images as compared to Baden-Württemberg.

lead to entrepreneurial success and even overall economic progress.

### **III. The Little Engine and Early Childhood Reading Programs**

Dolly Parton's Imagination Library (IL) was launched in Sevierville, Tennessee, in 1996. Since inception, IL has distributed 23 million books, primarily to lower income children (Dolly Parton Imagination Library, 2010). With extensive private sponsorship and partnerships with Rotary International and the United Way, IL is experiencing rapid growth in Canada and the United Kingdom. The book program is now offered to every child in Alaska, Georgia, Tennessee, West Virginia, and the Yukon Territories. IL's business plan requires local sponsorship and identification of specific children and readers who will work with the children. Once in place, the program mails a book to the enrolled child each month. Getting a package addressed to them turns out to be part of the excitement associated with the program for the children involved. The goal is more than getting books into the homes of children; it is to get books read to and by children. IL is a bottom-up program with heavy private funding and community participation.

Assessments of the effectiveness of IL have been conducted by various school districts and program sponsors (Evaluation Best Practices, 2010), but these statistically modest studies consider reading activity as a success measure. The studies do not control for family and other conditions that might affect outcomes, and do not and cannot assess achievement. The Hawaii sponsor reports a significant increase in the frequency of parent-child reading, which was the chief goal of that state's program. A similar finding was reported in a Wichita Falls, Texas, assessment. After six years of experience with IL, Hart County, Georgia's study shows a significant gain in reading readiness for IL children entering kindergarten relative to the base population. Similar assessments of kindergarten readiness performed in Jasper County, Georgia, show significant improvement for children with continued higher relative performance across the first three years in school. With 80,000 children having completed the IL program in Tennessee since the 2004 inception, the state Board of Regents completed a web-based survey of classroom teachers. Some 320 kindergarten and 150 pre-kindergarten teachers responded. The survey indicated significantly higher performance for IL participants versus non-participants. In a survey of participating sponsors in Tennessee, Georgia, and South

Dakota, IL asked for a ranking of the 100 books provided to children in the program. *The Little Engine that Could* ranked head and shoulders above the other books.

It is also well established that early attained reading skills for preschool children link to higher success in educational attainment. Riegner (2009) reviews a large sample of literature that affirms this point. He points out that “children develop much of their capacity to learn from birth to age 3” and that much early literacy acquisition takes place before going to school (Riegner, 2009, p.267). There is also research that indicates that children who have books and music available to them perform later at a higher level than those who do not have such access. Interaction between parent and child seems to add to the learning process. Much of what Riegner reports seems commonsensical, but academic confirmation matters.

In addition to providing a helpful survey of related education literature, Riegner (2009, p.272–73) provides an effectiveness review of a Georgia free book program initiated in 1999 by Robin Ferst Houser. The Georgia-based Ferst Foundation for Childhood Literacy program was inspired by the Dolly Parton Imagination Library activity. *The Little Engine that Could* was also Robin Ferst’s favorite childhood book. The program, which now handles the distribution of books in Georgia for the Dolly Parton programs, began operation in Morgan County, Georgia; it now operates in 58 of the state’s 159 counties. With funding raised by local sponsors, a child can be enrolled from birth to age five. The first book in the 60-book series is *Watty Piper’s The Little Engine that Could*. Assessment of the program’s effectiveness is positive. In Morgan County kindergartens, 67 percent of the base population of children scored at a satisfactory to high level in a common literacy skills test in 2001. Some 45 percent of the children initially enrolled in the Ferst program scored at that level. After three years with a reading enhancement program for all children, the performance level of the general population rose to 82 percent; performance for the Ferst group was 80 percent. In other Georgia counties where reading and readiness tests have been given to Ferst program children and the base population, there is evidence that the Ferst program enables the performance gap to be narrowed significantly.

In sharp contrast with programs initiated by private foundations and supported by grassroots community organizations, Reigner reports on a 1966 Reading is Fundamental program started by

Margaret McNamara in Washington, D.C., which grew to include 60 schools. Unlike the Parton and Ferst programs, which receive no federal funding, RIF came under the wing of the U.S. government. In 1975, the U.S. Congress provided federal matching funds for the McNamara program. Eventually, U.S. taxpayers became the primary source of funds for the organization. Until 2010, the organization was receiving \$25 million in taxpayer funds annually.<sup>6</sup> Some 4.5 million children in 17,000 locations nationwide were counted as receiving free books each year. Unlike the Parton program, which as a bottom-up program concentrates on bringing children and parents together in their homes to read books, RIF, a top-down program, focuses on book distribution through schools, hospitals, military bases, and community centers.

On February 1, 2010, President Obama released his proposed FY2011 budget, which eliminates the funding for RIF and its nationwide services. RIF described the effect of this as follows: “Without this federal funding, over 4.4 million children and families will not receive free books or reading encouragement from RIF programs at nearly 17,000 locations throughout the U.S.” (Statement from Reading is Fundamental, 2010). In effect, RIF’s existence has depended on having access to taxpayer money.

The apparent demise of RIF, which has been supported primarily with federal tax money, offers a sharp contrast to the expanding Dolly Parton program that has spread spontaneously through grassroots leadership and support. But the differences between the two programs go far beyond their business plans. As mentioned, RIF is about getting books into the hands and homes of children by way of free distribution through schools, with motivational sessions and other programs provided along the way. Parton’s program is about getting children involved in reading books with an adult who commits to participate with a child. Parton is about assured early childhood reading.

#### **IV. Linking the Engine to Prosperity: Final Thoughts**

That a nation’s educational attainment and economic growth are linked is now conventional wisdom. There is evidence that shows

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<sup>6</sup> According to the organization’s annual reports, federal funds account for roughly 80 percent of total revenue from 2004 through 2008, which is the most recent data available. (The 2008 report can be viewed at Reading is Fundamental (2008)).

that increased investment in human capital leads systematically to growth in income. (See Barro (1993) for a survey and report on experience for 100 countries, 1960–1985.) Indeed, this is the very notion of human capital. A recent confirmation of such findings is seen in the work by Turner et al. (2006) that estimated rates of return of education for the U.S. states from 1840 to 2000. They found a rate of return of roughly 15 percent per year of education, which is typical of other such studies.

But somehow inspiring the human spirit to need achievement in life does not necessarily link to private enterprise entrepreneurship and creative capitalism (Boettke and Coyne, 2009). As Coyne and Leeson (2004, p.236) put it:

Institutionally dependent payoffs determine the direction of entrepreneurial alertness and efforts. In order to understand the plight of developing countries, it is critical to understand that it is not a lack of entrepreneurship that is the problem, but rather the institutional context directing entrepreneurial activities toward perverse ends. Specifically, some institutional regimes channel entrepreneurial activity into economically destructive avenues, while other frameworks direct this activity in a way that creates wealth.

Where market competition is supplanted by political competition and more can be gained individually by working a bureaucratic maze than by producing improved products and services, entrepreneurial talent will be directed toward rent-seeking activity that dissipates more wealth than is created. Achievement in a bureaucratic world means getting a government grant, contract or permit; it does not mean successfully building an enterprise that generates positive cash flow. In either case, successful individuals can celebrate with *The Little Engine Who Could* by saying “I think I can”!

There is evidence that higher achievement motivation matters in the formation of what might be called the entrepreneurial mind (McClelland, 1965; McClelland and Winter, 1969; Mikk, 2004; Tucker, 1988). But property rights institutions will determine if the inspired entrepreneur engages in wealth-creating activities that make the income pie larger for one and all or becomes specialized in transfer activities that make the pie smaller.

In short, reading achievement motivation stories to young children will not systematically lead to higher incomes and greater prosperity. If inspiration to succeed is to be transformed into wealth creation, then wealth-forming and -protecting institutions must constrain human action. With those institutions in the background, one should predict frequent sighting of books like *The Little Engine that Could*. The stories are endogenous to the culture where they are found.

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