A broader view

SPILLOVERS TO SOCIETY

“Our most basic common link is that we all inhabit this planet. We all breathe the same air. We all cherish our children’s future. And we are all mortal.” (John F. Kennedy, June 10, 1963)

Why look at education spillovers to society?
And what might some of the spillovers be?

- participation in the democratic process
- smoking
- health outcomes: is there a relationship
- the arts
- infant immunizations
- blood donations
- volunteerism and charitable giving
- school quality and the housing market
citizenship
Motivation: Why look at spillovers to society?

People make sound investments in education when they are well informed and when it is in their best interest to do so. It can be said that self-interest generally drives what we do, and deciding on how much to invest in education is no exception. As we have noted elsewhere, enhanced earnings and monetary gain are the primary lures to schooling and training since the earnings accrue directly to the individual. Of course, many people pursue education simply because they enjoy it.

Important community-wide spillover benefits are also associated with an individual’s investment in more education, and these benefits are the very marks of good citizenship. Good citizens recognize, for example, that they have a responsibility to other people, the law, and the environment. This responsibility includes not only the actions we all can take that help support our local community, state, nation, and globe (like voting and volunteering) but also the process of engaging in learning and education so that we can make other contributions to our community. (For more information on teaching children good citizenship, see Parenting.org and GeorgiaStandards.org.) Whether these spillovers are purposeful or just positive side-effects does not matter. And in fact, spillover benefits from education are one reason why there is public support for schooling.

Some of the personal benefits are discussed in other parts of this book. For example, we have highlighted the consequences for the family of having well-educated parents and have discussed the benefits for the economy from having a well-educated workforce. Here we take one more step down this path and highlight just a small number of other ways that education can positively or negatively affect the people and the world around us.

“I know of no safe depository of the ultimate powers of the society but the people themselves; and if we think them not enlightened enough to
Participation in the democratic process

Education is the cornerstone of a well-functioning democracy. The founders of our nation believed strongly that an informed electorate could make wiser choices at the ballot box than an uninformed electorate.

We often bemoan the low rate at which Americans go to the polls. In the 2004 presidential election, for example, just over one-half (54.6%) of eligible Tennesseans even bothered to vote (U.S. Census Bureau, 2005). But the better educated do tend to participate more in the voting process. For example, national data for the 2004 election show that 74.2% of college graduates voted while only 23.6% of those with less than a 9th grade education voted.

It is disappointing that voter participation has declined with the passage of time. But those with a college degree or advanced degree have seen the smallest declines. Between 1968 and 2004, those with less than a 9th grade education saw the largest drop at 30.9% whereas individuals with a bachelor’s degree saw voting rates fall only 9.9%.

“A popular government without popular information or the means of acquiring it is but a prologue to Farce or Tragedy or perhaps both. Knowledge will forever govern ignorance, and a people who mean to be their own Governors must arm themselves with the power knowledge gives” (James Madison, 1788).

“Exercise their control with a wholesome discretion, the remedy is not to take it from them, but inform their discretion” (Thomas Jefferson, 1820).
According to the World Health Organization (2004), tobacco is the 2nd major cause of death in the world and is responsible for the death of 1 in 10 adults worldwide, or about 5 million deaths each year. Further, tobacco is the 4th most common risk factor for disease worldwide. The World Health Organization states that “in addition to the high public health costs of treating tobacco-caused diseases, tobacco kills people at the height of their productivity, depriving families of breadwinners and nations of a healthy workforce. Tobacco users are also less productive while they are alive due to increased sickness” (World Health Organization, 2004).

At one time, people were not aware of the hazards of smoking. But scientific research, public awareness campaigns, and cigarette warning labels have changed this misinformation. Nonetheless, many people—adults and youth alike—continue to smoke. The American Cancer Society (2006) estimates that there were 45 million adult smokers in 2005. They also estimate that 12% of middle-school-aged youth used some form of tobacco product in the same year.

Smoking tends to be more common among those with lower levels of educational attainment (American Cancer Society, 2006). It is believed that with more education people become more aware of the health consequences of tobacco use for themselves and others, and as a result, they smoke less. In addition, better educated people have a higher lifetime income stream to protect and so they may be more careful with important lifestyle choices like smoking.

The health consequences of smoking are many

- Cigarette smoking accounts for nearly 440,000 of the more than 2.4 million annual deaths in the United States (American Heart Association, 2007).
- Smoking, on average, reduces adult life expectancy by approximately 14 years (CDC, 2005a).
- Cigarette smokers have a higher risk of developing a variety of chronic disorders that compromise health. Studies show that cigarette smoking is a major cause of coronary heart disease, which leads to heart attack. Smoking also increases the risk of recurrent coronary heart disease after bypass surgery. Smoking increases blood pressure, decreases exercise tolerance and increases the tendency for blood to clot (AHA, 2007).
- The link between secondhand smoke and health status has also been established. Estimates suggest that as many as 40,000 people die from being exposed to other people’s smoke each year. About 35,000 of these nonsmokers die from coronary heart disease, including heart attack (AHA, 2007).

To smoke or to educate: What are our priorities?

In 2003, cigarette companies spent $15.2 billion nationwide, or more than $41 million per day, on advertising and promotion.

To put this in perspective, spending in Tennessee on public education totaled $6.9 billion in 2005/06 (State of Tennessee, 2007 & CDC, 2007a).

But the story does not end there. There are also substantial economic costs associated with smoking and tobacco use for the individual and society at large.
Cigarette and tobacco use may divert household spending away from necessities. Total U.S. expenditures on tobacco were estimated to be $88.8 billion in 2005, of which $82 billion was spent on cigarettes (CDC, 2007a).

Adverse health effects mean substantial forgone earnings for an individual and the family.

Individuals must pay more for insurance to provide health care to those with smoking-related health problems. Direct medical costs associated with smoking totaled $75 billion between 1997 and 2001 (CDC, 2007a).

Workers miss time from their jobs and may miss important on-the-job training opportunities that could otherwise enhance earnings.

The overall economy produces less output to the detriment of all. Estimates for average annual smoking-attributable productivity losses are approximately $61.9 billion for men and $30.5 billion for women (CDC, 2005b).

**Percentage of persons who are current cigarette smokers by education level**

Linear trendline on all persons aged 25 and over who smoke.

*The propensity to smoke declines with higher educational attainment levels.*

29.5% of males who did not graduate from high school or earn a GED are current cigarette users.

9.6% of women with a bachelor’s degree are current cigarette users.

Evidence from the literature

“Many studies have documented that education is inversely associated with a wide array of clinical disease outcomes and death, and the relationship between education and cardiovascular disease and coronary heart disease in particular is among the most consistent and pronounced” (Medical News Today, 2006, p. 1).

“Education remains important when controlling other known determinants that also are associated with education, such as cognitive capacity and income. Nevertheless, a large number of possible pathways link education to health. People with more education attain more health knowledge and coping skills, develop a greater sense of personal efficacy, are more aware of issues of all kinds, and participate more actively in their communities. Higher educational attainment leads to better jobs, typically providing greater autonomy, higher incomes and fringe benefits (including health insurance), and greater respect. All of these factors lead to more opportunities to live in better neighborhoods, be protected from hazards, and have access to better community resources and services. These and other possible pathways raise questions of whether policies that are more specifically targeted, and perhaps easier to implement, can achieve comparable health benefits more efficiently“ (Mechanic, 2006, p. 1179).

A recently released study on breast cancer treatment is disturbing. Apparently women who have low levels of education get insufficiently small doses of chemotherapy (Bakalar, 2007). The study notes, “about 32 percent of the women with less than a high school education received insufficient doses, compared with 14 percent of high school graduates” (Bakalar, 2007, p. 1). While the study does not offer a definitive statement on why this happens, there is speculation that doctors are doing this because the treatment process is long and arduous and more poorly educated woman may not fully understand the scope of the treatment process. Since chemotherapy leads to discomfort, giving poorly educated women lower doses may help keep them on the medical regimen.

Evidence from our own communities

A 2004 Appalachian Regional Commission study evaluated disparities in health outcomes across the region. Author Joel Halverson at West Virginia University states, “there is a growing awareness in the public health community that a person’s health (both physical and mental) is linked to contextual circumstances and events in addition to the influence of individual risks” (p. xiv). Included in those contextual circumstances is, of course, educational attainment. Halverson looked for potential associations between educational attainment and health outcomes and found that certain regions experience adverse health outcomes for many diseases in addition to having generally higher rates of unemployment and poverty, as well as lower incomes and levels of educational attainment; however, he continues to explore these associations and seeks to develop methodologies to measure them appropriately.

Let’s consider cancer in our state

Almost 13,000 Tennesseans died of cancer in 2004, accounting for nearly 23% of all deaths in the state (Tennessee Department of Health, 2006).

We have looked at all 95 Tennessee counties and compared educational attainment with cancer deaths. There is a strong inverse correlation between the share of the adult population with at least a high school degree and cancer deaths. In other words, counties where higher percentages of the population hold at least a high school diploma tend to have lower cancer death rates, as a percentage of the county population. The pictures say a lot. Of course, a host of factors influence a community’s health status; that is why the dots are spread across the chart. But the dots are nonetheless clustered and the figure provide strong evidence that education is an important factor affecting county-level health status in terms of cancer deaths.
The arts

Exposure to the arts is an important part of the process of discovery for the mind, whether one is young or old. People can learn much about history and culture by studying the arts. Music, dance, painting, and so on also allow one to express creative spirit in ways that might not otherwise be possible.

Studying the arts may provide spillover benefits to the child. For example, according to the National Arts Education Public Awareness Campaign,

- The arts teach kids to be more tolerant and open.
- The arts allow kids to express themselves creatively.
- The arts promote individuality, bolster self-confidence, and improve overall academic performance.
- The arts can help troubled youth, providing an alternative to delinquent behavior and truancy while providing an improved attitude toward school.
- 89% of Americans believe that arts education is important enough to be taught in schools.

Strong community support of the arts means more opportunities for everyone to enjoy the arts. So who participates in the arts? Well, just about everyone does in one way or another. Information indicates that better educated people have higher attendance rates at both art museums and historic sites (U.S. NEA, 2004).
Infant immunizations

Communicable diseases cost us greatly. Health status may be compromised; health care costs can be high; families may lose loved ones; and society loses productive workers. Immunizations are a good example of how one person’s choice can affect the well-being of others. If I get vaccinated against a communicable disease, not only do I benefit but so do those around me. Conversely, my lack of vaccinations presents a risk to others. Also, since I can anticipate that many other people may get vaccinated, maybe I just won’t do it. The spillover benefits that accrue to society are the primary reason why government often subsidizes vaccinations for both children and adults.

Immunization is critical to the maintenance of people’s health and well-being. Because of strong immunization programs, smallpox has been eradicated, polio is close to being eliminated, measles has been essentially eliminated from the western hemisphere, with rubella expected to follow soon (CDC Foundation, n.d.)

Here are some more detailed examples (CDC, 1999):

- There were 48,164 smallpox cases in the U.S. in 1900–04, but there have been no reported cases since 1950.
- In the 5 years before the measles vaccine was licensed (1958–62) there were 503,282 reported measles cases in the U.S.; in 1998 there were only 89 cases.
- The average annual number of rubella cases in 1966–1968 (the 3 years before vaccine licensure) was 47,745, while there were only 345 cases in 1998.

We are lucky. These declines are not the case elsewhere as communicable diseases remain common. For example, worldwide in 2000, there were 1.7 million vaccine-preventable deaths among children, of which nearly 50% (or 777,000) were from measles (American Red Cross, 2002).

Dr. Anne Schuchat, the director of the CDC’s National Center for Infectious and Respiratory Diseases, announcing national infant immunization week this year, stated that through the use of infant immunization programs “millions of children have been
vaccinated, and millions of cases of disease, disability and death have been prevented. We can now protect more children from more vaccine-preventable diseases than ever before.”

The CDC estimates that 11,000 babies are born in the United States every day, each of whom will need to be immunized against 14 diseases before age 2. Although infant immunization coverage is at an all-time high in the U.S., more than 20% of the nation’s 2-year-olds are still not fully immunized against easily preventable infectious diseases (CDC, 2007b).

A mother’s education level appears to directly impact the probability of her child being immunized, though the differences are small. A primary explanation for these small numbers is the role played by schools and public health programs in getting to needy children. The table shows immunization rates by the mother’s education level for 3 different vaccines. The chance of a child being immunized tends to rise with maternal educational attainment. The DTP+ vaccine shows the most substantial immunization rate differential across the 3 attainment categories, a difference of 12 percentage points.

<table>
<thead>
<tr>
<th>Mother’s highest education level</th>
<th>MMR</th>
<th>DTP</th>
<th>DTP+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than high school</td>
<td>91%</td>
<td>94%</td>
<td>77%</td>
</tr>
<tr>
<td>High school</td>
<td>92%</td>
<td>97%</td>
<td>83%</td>
</tr>
<tr>
<td>Some college</td>
<td>93%</td>
<td>99%</td>
<td>84%</td>
</tr>
<tr>
<td>College degree</td>
<td>92%</td>
<td>99%</td>
<td>89%</td>
</tr>
</tbody>
</table>

Notes: For additional notes and confidence intervals, see original source.
Volunteerism and charitable giving

Americans give to others in many ways, from cash donations to charity to financial support of their church to in-kind support of programs like Habitat for Humanity. When global calamity strikes, Americans lend a helping hand.

According to a report from the U.S. government, over 61 million people volunteered at least 1 time between September 2005 and September 2006, representing 26.7% of the population (BLS, 2007). Almost 3/4 of those who volunteered had some college or a college degree. People with different levels of education tend to support different causes. For example, individuals with less than a high school education spent relatively more time in support of food collection or distribution programs, while college graduates spent more time providing professional or managerial assistance or serving on a board or committee.

A recent study found that a 1% increase in the adult population with a graduate degree increases average giving per tax filer by about $30.10 annually (Gittell & Tebaldi, 2006). This is consistent with previous research findings that adults who have completed postgraduate work have significantly higher average giving (almost 1 1/2 times the average level of giving per household income) as those with a high school diploma (White, 1989, p. 66, as cited by Gittell & Tebaldi, 2006).

Blood donations

Millions of people a year receive blood transfusions. The Red Cross has been a national leader in supporting blood and plasma donations. When blood supplies slip below a 3-day stockpile, alerts are issued to encourage additional donations. Most of us have likely heard these pleas from the Red Cross and others. When the call goes out, we respond.

Giving blood is a good example of altruistic behavior: People make a gift without receiving anything in return other than the personal satisfaction of making the donation. Altruism indicates that people care fundamentally about the well-being of others in society.

People of all walks of life give blood—young and old, black and white, male and female. A statistical analysis of countries in the European Union, as well as Norway and Finland, showed that people with higher incomes and higher education tend to have a greater likelihood of ever having given blood (Healy, 2000).

There is also nationwide evidence that blood donations rise as educational attainment rises (College Board, 2004). Individuals who have graduated from high school are almost twice as likely as dropouts to give blood. People with a bachelor’s degree are almost 3-times as likely to give blood as dropouts.

Blood donations, % who donate regularly, 1994


Likelihood of volunteering is also linked to attainment

School quality and the housing market

The home is the largest and most important financial investment most Americans will ever make. Many factors affect where one chooses to live. For example, most people want to live in reasonably close proximity to their place of work. People generally prefer to live near desirable amenities like parks and shy away from noxious facilities like dumps and landfills. These amenities and dis-amenities have been found to affect local property values. For example, living near a lake or reservoir means higher property values, while living near a dump or waste facility diminishes property values (Farber, 1998; Lansford & Jones, 1995).

Proximity to schools and school quality also enter in the home-buying process for many households. Realtors know how commonly this comes up when they work with clients. The importance of schooling to the household becomes evident when the issue of rezoning or redistricting comes up. Many parents, as well as children, are upset if they are told they must attend another school. For children, it is often the loss of friends that is the driving force behind their opposition. For parents, it may be that they chose their place of residence because of the quality of the local school or area school district.

If parents make residency decisions based on school quality, might this affect the local housing market? For example, places with poor quality schools would not likely attract many people who place a high value on quality education for their children. In these areas we might anticipate a relatively weak demand for property. By the same token, places with high quality schools might be magnets for parents who care more about the education of their own children as well as that of other children in the community. In such places the demand for residential housing may be greater. In these cases the quality of the local schools may have a spillover influence on local property values.

Researchers have studied this very question and found that school quality is associated with higher property values as intuition would suggest. Here are some examples (Zahirovic-Herbert, 2007):

… Higher standardized test scores in local areas have been found to be linked to higher property values in the same places. Test scores are viewed as a signal of schooling quality to home buyers.

… Report cards that grade public school quality were found to affect housing prices in Florida. Following the release of the report cards, each letter grade was associated with a 10% increase in the selling price of a home.

… Declining schools apparently have little or no effect on housing prices, though they can delay the time of sale by about 14%.
Introduction


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