

# Introduction to Health Economics and Policy Term Paper: Health and Education

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## 1 Introduction

Although seemingly obvious, there is quite a bit of depth to the question of whether education can improve health, reduce mortality, and increase life expectancy. The mortality rates of people with no secondary school diploma is up to twice of those with some university education[1].

“An additional four years of education lowers five year mortality by 1.8 percentage points; it also reduces the risk of heart disease by 2.16 percentage points, and the risk of diabetes by 1.3 percentage points. Four more years of schooling lowers the probability of reporting in fair or poor health by 6 percentage points, and reduce lost days of work to sickness by 2.3 each year. [...] the magnitude of 4 years of schooling is roughly comparable in size to being female or being African American. These are not trivial affects.”[2]

So, while these things are correlated, are they connected? Does education matter to our health, and how? There are three plausible explanations for the education effect, firstly that “[...]there is a causal relationship between schooling and health. [Secondly], that the direction of causality is reversed. [Third], that there is no causal relationship implied by the observed correlation between education and health.”

## 2 Health as a confounder: Wealth, Income, and Careers

### 2.1 Wealth, the sheepskin effect, and access to healthcare and hygiene products

An obvious speculative answer is that the educated tend to work in higher-paying jobs, and hence have more money to spend on healthier food, insurance, and other health-related consumption goods. This is supported by a simultaneous increase in “health returns to education in the 1980s and 1990s at the same time that the labour returns to education were rising.”[9] However, even in this case, when income, marital status, ethnicity and health insurance is controlled in the data it still only accounts for one third

of the difference: there is still an educational effect[2]. Additional evidence shows that when even job occupations are controlled, those with an education are healthier than those without[2][3].

Whilst poverty most certainly has a negative effect on health, wealth is not the explanation. This is explained by the lack of a sheepskin effect in health as there is in the labour market: graduates earn a lot more money the moment they graduate, however graduate health and mortality doesn't have such a drastic change simply due to having the degree. If income was the explanation, there would be a sharp change between final year students and graduates; however, the relationship between the penultimate, final, and graduate students is linear in almost all areas. In fact, the effect on healthcare is linear after the 10th year of education (i.e Year 11 students who will be taking their GCSEs), unlike earnings would be[2].

Furthermore, the health benefits of (or related to) an education diminish after 50 years old[2]. In the model that health increases with wealth, this does not follow as this is when many adults reach peak earnings and have the most stable jobs. Additionally, no amount of money can save anybody from death or the many illnesses that occur naturally with old age: only exercise and good decisions during formative years can delay these ailments which requires planning and an investment in oneself.

Additionally, to further prove that income is not as important to health as one assumes, Cutler and Lleras-Muney show that the impact of education on health is actually biggest to individuals which come from families above \$20,000pa. This suggests that income is complementary to education—i.e the means to buy healthcare—rather than the reason for good health[2].

## 2.2 Intelligence and educated decisions

Research shows that people with four more years of education (i.e university graduates) “have healthier behaviours “almost unanimously: “Those with more years of schooling are less likely to smoke, to drink a lot, to be overweight or obese, or to use illegal drugs. Interestingly, the better educated report having tried illegal drugs more frequently, but they gave them up more readily.” [2]

The latter point is particularly interesting, as it suggests that the costs of continuing consuming the drugs/the addiction outweighs the benefits and enjoyment the user receives to the point where any potential withdrawal symptoms are not a barrier. This is rational considering some of the effects of drug addiction include losing jobs, criminal convictions, and the biological effects of drug use could ruin a future that they see as being very valuable and full of potential.

Further to the point, the wider drug use suggests that educated people are more curious and open to new things which could mean faster adoption of scientific research and technology: 71% of those with a degree thought that new technology was beneficial despite potentially harmful results compared to just 25% of those without a high school diploma. This might be because “they are more likely to understand the nature of scientific enquiry.” [2][4]. For example, the educated were one of the first to quit smoking after the 1964 Surgeon General Report[5]. With smoking today, although most people

know of the affects and risks, the uneducated continue to smoke the most, implying that the decisions educated people make goes beyond information and knowledge[6][7]:

“Education might matter for health not just because of the specific knowledge one obtains in school, but rather because education improves general skills, including critical thinking skills and decision-making abilities.”[2]

Additionally, educated people “are more likely to exercise and obtain preventative care such as flu shots, vaccines, mammograms, pap smears, and colonoscopies. Among those with chronic conditions such as diabetes and hypertension, the more educated are more likely to have their condition under control. Furthermore, they are more likely to use seat belts and to have a house with a smoke detector and that has been tested for radon.” This also proves that, in other and more mundane topics, educated people are more responsible and willing to invest in their future.

This supports my hypothesis above, in that the value of their future is worth the due care and attention that they give at the present. When looking at this through the Beta-Delta discounting model, it’s clear that educated people value their future more than those without an education[8]. Perhaps, in addition to educated people valuing their futures more, it’s possible that those without education have little incentive to do so, on average, meaning that ways to enjoy themselves now are far more useful to them than a future without much to look forward to[2]. However, this theory is difficult to test and so we cannot know its significance.

It is possible that, in this case, education is simply used analogously to intelligence. Intelligent people tend to make ‘intelligent’ decisions, such as wearing seatbelts and looking after their bodies, but also getting an education for its virtuous and economic value[10]. The iconic Stanford marshmallow experiment proved that children which had a good understanding and also appreciation for increased total earnings in the future compared to present preferences (i.e a second marshmallow for waiting 20 minutes) tended to achieve higher SAT scores and were more likely to attend a university[11]. It’s also possible that higher education can lead to even lower discount rates, magnifying the effect[10][12].

As such, there is evidence to suggest that intelligent people want to invest in themselves and their future; an education and a healthy body are often the two most important things and it is not surprising that they are correlated.

### **2.3 The spillover effect**

The positive healthcare effects of education spread to spouses, parents, and children. For example, mothers with more education tend to have healthier babies[13]. Uneducated parents of educated children also received benefits, with one paper showing that these parents were more likely to quit smoking[14]. Furthermore, uneducated spouses sometimes have lower mortality rates, better health, and partake in fewer unhealthy habits like drinking and smoking[15][16][17][18]. In this case, we see that it is education and not wealth or any other confounding variables that benefit people. However, education

is still a medium with which to see individuals who make better decisions and value the future more than their uneducated children, parents, or spouses. While this interesting nuance only complicates the question, it should not be ignored.

## **3 Education as a direct contribution to health**

### **3.1 Forced attendance**

The argument that I outlined in the “Intelligence and educated decisions” section, in short, states that intelligent people tend to get an education and invest in themselves and in their future, including healthcare. This explained the reason why people with more education tended to have better health and lower mortality rates.

However, that would not account for data that shows schoolchildren who were forced to attend additional years of education due to policy changes in England, Ireland, the US, Denmark, and Sweden all had improved health and lower mortality rates[19][20][21][22]. The consistency of the effect over a variety of countries negates other possible policy changes that could impact health. This implies that even when education is forced it provides health benefits, negating the causal theories of self-investment and intelligence.

Despite this, there still is no clear causal argument as to why education makes a direct difference to health; research into “the causality between education and health within a specific country [has] generated different results.”[23] However, Cross makes an attempt to statistically prove the link in a regression equation that takes into account several variables and deals with education being either an endogenous or exogenous variable[23]. He shows that for 75% of the analysed ailments there is positive and statistically significant evidence between education and healthcare, all things considered, with the educational effect being “larger than the Probit estimates [can explain] alone.”[23]. Cross claims that “the relationship between education and reporting poor health is very robust and most likely to be causal.”[24]

### **3.2 Breast cancer**

On the other hand, whilst there are casual arguments as to why health can lead to better education, leading to questions about reverse causality, it cannot account for mandatory education effects and also that cancer diagnosis and mortality rates are higher in educated women[23]. This is uniquely true of breast cancer, as instances of cervical cancer decrease with education[25].

## **4 Summary**

Current research and literature suggests that, with few explicable exceptions, healthcare does improve with education due to the positive socio-economic effects and, with plausible evidence, because of it. The exceptions, like breast cancer, succeed in providing evidence of a causal relationship. Education can be used as a confounding variable that

is analogous for a variety of exogenous factors like wealth, access to infrastructure, and intelligence. Either way, it is clear that more education will increase one's probability of being healthier and living longer.

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