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POLICY BRIEF

# The Impacts of Education on Crime, Health and Mortality, and Civic Participation

Many governments are currently considering or have already implemented sharp cuts to education. What are the likely long-run consequences of these cuts? Recent evidence suggests that the lasting impacts of reductions in early childhood investments, school quality, and educational attainment among today's youth are likely to extend beyond declines in future productivity and earnings. Crime rates are likely to increase, health is likely to deteriorate, and political and social institutions may suffer.

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Economists have long recognized and measured the lifetime benefits of education from improved earning opportunities. More recently, however, economists have begun to study the effects of education on a wide range of personal and social outcomes. In CIBC Working Paper (2010-7) "Non-Production Benefits of Education: Crime, Health, and Good Citizenship," Lance Lochner surveys this growing body of evidence, which shows that education can reduce crime, improve health, lower mortality, and increase political participation. In some cases, the social benefits from these impacts are sizeable.

Of course, measuring the causal impacts of education is not as easy as comparing outcomes for more and less educated individuals, since individuals making different education choices may differ in important unobserved ways. Recent studies primarily address these concerns by using instrumental variables and related statistical methods, which often exploit policy changes (e.g. changes in compulsory schooling ages) that exogenously affect education levels for different subpopulations. By comparing the impacts of those policy changes on both schooling levels and other outcomes, it is possible to measure the causal effect of education on those outcomes.

*Crime*

Around the world, incarceration and conviction rates are high among the least educated. A number of recent studies find that this correlation reflects a causal relationship: education actually reduces adult crime. For example, one study finds that increasing high school graduation rates by one percentage point in 1990 would have resulted in nearly 100,000 fewer crimes in the U.S., providing an annual social benefit valued at more than $2 billion (or $3,000 per additional male graduate). Notably, this study finds that increases in education would reduce both violent and property crimes. A United Kingdom-based study estimates that increasing the population of individuals with an education qualification (analogous to high school completion in North America) would reduce property crime enough to produce a savings of over £10,000 per additional student qualification.

Open school enrolment lotteries and desegregation efforts in the U.S. appear to have reduced crime rates by improving school quality. Estimates suggest that reductions in arrests associated with offering better quality

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school options to a high-risk youth produces a roughly $16,000 social savings to victims over the next seven years. Because better schools are also likely to have reduced crimes that never led to an arrest, total victimization savings may be 3-5 times higher. Total social savings would be still greater after factoring in savings on prisons and other crime prevention.

The long-run impacts of early childhood and school-age interventions on juvenile delinquency and adult crime can be substantial for disadvantaged youth. For example, estimates suggest that Perry Preschool produced a social benefit from crime reduction of roughly $150,000 per child (through age 40). Yet, other model early childhood programs like Abecedarian produced no significant impacts on crime. Unfortunately, we do not yet understand these differences.

In general, policies designed to encourage schooling among more crime-prone groups (typically the most economically disadvantaged) are likely to produce the greatest benefits from crime reduction. Consistent with this, the school-age Fast Track program implemented in four diverse American communities appears to have reduced juvenile crime only among very high-risk children, showing little impact on even moderately high-risk children. Similarly, improved school choice for middle and high school students appears to lead to significant reductions in arrests for high-risk youth but not for others.

*Health*

Educational attainment also improves health. Recent studies estimate that an additional year of high school improves self-reported health outcomes by 15-30% in the U.S., while European-based studies typically find more modest impacts. Unfortunately, there is less consensus in the literature regarding the impacts of education on mortality: estimates range from negligible to implausibly large. Schooling appears to improve some health habits but not others. A number of studies, especially those analyzing more recent years, estimate that an additional year of schooling reduces adult smoking rates by at least 10% and maybe much more. In contrast, some of these same studies find that education has little impact on obesity. Finally, there is limited evidence that parental education levels affect child health; however, estimates vary widely.

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Do improvements in health associated with education simply reflect greater health expenditures or costly changes in behaviour? That is, do more educated individuals simply 'buy' better health? Unfortunately, existing studies do not offer a clear answer. On the one hand, most evidence suggests that health behaviours and habits play little role in explaining the relationship between education and health outcomes. On the other hand, the fact that differences in income by education explain one-fourth to one-third of the education – health correlation is consistent with an important role for costly inputs.

Most health-related benefits are difficult to value (e.g. improvements in self-reported health). However, a large literature has developed to measure the value of a statistical life (VSL) based on the amount of money someone would pay to reduce their probability of death by a small amount. Typical VSL estimates of $3-5 million suggest that a 0.01 reduction in ten-year mortality rates should be valued at roughly $3-5 thousand in annual gains. If education reduces ten-year mortality rates by 0.01 (a figure within the range of recent mortality estimates and roughly consistent with the much larger set of estimates on self-reported health), and if half of that reduction is 'paid for' in the form of costly health investments and behaviour changes, then a ballpark figure for the mortality benefits of an extra year of school is probably on the order of $1,500-2,500 per year, a non-trivial sum comparable in size to the gains from crime reduction discussed earlier. The value of more general health improvements is also likely to be sizeable.

*Civic Participation*

The hypothesis that education encourages and strengthens democracy has a long intellectual history dating back to Aristotle at least. It is certainly true that more educated societies tend to be more democratic. But, does education actually improve citizenship and political engagement? A few recent individual-level analyses suggest that it does – in the U.S. at least. U.S.-based studies estimate that an additional year of schooling significantly increases voter registration and voting, with most impacts ranging from 30% to 40%. More generally, education appears to increase political interest and other forms of political participation, as well as the extent to which individuals are informed about politics. By contrast, studies find much weaker effects on voting and other measures of political engagement in the U.K. and Germany.



*General Lessons and Caveats*

Given the empirical strategies used to estimate the impacts of schooling on crime, health and citizenship, we have plenty of evidence on the impact of additional years of high school but know much less about the effects of higher education. There is good reason to believe that increases in college and university attendance are not likely to yield dramatic benefits from crime reduction (at least in the near future), since studies have shown that education-based interventions and policies appear to reduce crime and delinquency most among the least able, most disadvantaged. A few studies have estimated significant reductions in smoking and improvements in political participation in response to additional years of higher education, but studies that measure the impacts of post-secondary schooling on health or citizenship are the exception. There is growing evidence that preschool and school interventions at early ages can reduce delinquency and crime years later; although, not all programs do.

Much of the evidence is based on studies in the U.S. and Europe. What might we expect for Canada? The impacts of education on crime, health, and political engagement are likely to depend heavily on national and local criminal justices policies, health care provision, and political systems. Given the sizeable impacts of education on crime in both the U.S. and Europe (despite vastly different baseline crime and incarceration rates), one might expect similarly large effects in Canada. Education has relatively weak effects on health and mortality in Europe (compared to the U.S.), where health care tends to be universal and economic inequality is generally lower. It seems likely that impacts of schooling on health are similarly modest in Canada. To the extent that the impacts of education on voting and political participation are related to voter registration and turnout rates, we would expect modest impacts in Canada that lie somewhere between those of the U.S. and most European countries. It should be noted, however, that we still know very little about what determines the impacts of education on crime, health, and political engagement, so one needs to be careful in extrapolating findings to countries other than the U.S. and those European countries that have been studied thus far. Unfortunately, we know almost nothing about how education affects non-wage outcomes in developing countries where overall education levels are relatively low.

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*What do these findings mean for government policy?*

Crime reduction is an obvious externality that may justify expenditures on policies that improve the skills of the most disadvantaged. To that end, governments may wish to target preschool programs to high-risk youth, improve school quality in high-crime areas, and foster programs that encourage high school completion. Current evidence suggests that well-targeted education-based programs can be more cost-effective than traditional law enforcement policies once all costs and benefits are accounted for. Education policies targeted to the most disadvantaged have the added benefit of reducing economic inequality. There is little evidence of important education externalities in the health domain; most gains are private or, at least, contained within the family. This means that the individuals bearing the costs of education also receive the rewards. As such, arguments for education interventions based on health gains are likely to be based on equity and social justice or on the argument that individuals are unaware of important health benefits when they make their schooling decisions. Even if youth are unaware of the health benefits associated with schooling, the social value of education-based initiatives (from improvements in health) is likely to be small if those benefits are largely achieved through greater health care expenditures or costly changes in behaviour (e.g. exercise). Unfortunately, we still know very little about how or why education improves health, so more research is needed to determine whether education-based policies are efficient instruments for improving national health. Finally, it is clear that changes in political participation affect the democratic process; however, it is difficult to know exactly how and even more difficult to put a value on this.

## References

Lance Lochner, "Non-Production Benefits of Education: Crime, Health, and Good Citizenship," CIBC Working Paper 2010-7, 2010.

## About the authors

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