Response to the Discussants and Alan Krueger

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It is surprising to us that most of the discussants see so little difference between our chapter and the Krueger chapter in the nature of the argument presented and treat the two as equals. In our chapter, we present a comprehensive, empirically documented analysis of a variety of human-capital policies. We outline a framework that provides a basis for comparing alternative policies through understanding the sources of the problems that the policies are designed to address. Instead of presenting what is arguably selective evidence on whether certain programs “work” or “do not work”, we report exhaustive evidence on the sources of the problems that the programs are designed to address in an effort to develop an informed basis for human-capital policy. The differences between our chapter and Krueger’s are not small. The approach Krueger takes is to advocate cures without understanding the problems being cured, to evaluate programs without properly accounting for costs.

Figure 2.6 is a crucial part of our argument. Throughout our chapter, we present evidence that skill begets skill: that the highest returns to schooling and training are for the more able. We recognize a multiplicity of abilities.

Our chapter makes the following main points that are neglected by most of our discussants and by Krueger:

- Human-capital accumulation is a dynamic life cycle process. Skill begets skill in a synergistic way. Evaluating human-capital investment programs requires that analysts account for the dynamic nature of human-capital accumulation.

- Many factors contribute to the formation of human capital. Early family factors play a crucial role that current discussions of human-capital policy ignore. Schools work with what families give them. Job training programs work with what schools and families give them. Understanding these multiple channels of influence and their dynamic interrelationship is critical to understanding disparities in human-capital formation across socioeconomic groups and how they might be remedied. Current
policy discussions treat job training, schooling, and early-childhood programs as unrelated activities. This myopia in academic thinking gives rise to the current division of human-capital policy among three cabinet level agencies that rarely coordinate their skill investment strategies. Our chapter breaks from this myopic tradition by developing an understanding of the fundamentals of life cycle skill acquisition before advocating specific policies. Decades of treatment effect analyses of social programs have produced many failed policies.

- Our analysis points to the importance of the family in creating differences in cognitive and noncognitive abilities that shape success in life. Differences in these abilities across children from different families appear early and persist. There is some evidence that they widen with age, that cognitive abilities are fairly stable after age 7 or 8, and that noncognitive abilities can be improved until the late teenage years.

- Both cognitive and noncognitive skills matter, although most of the discussion of human-capital policy focuses on cognitive skills. Krueger presents no evidence on the importance of noncognitive skills, whereas we present original research. We show that early-interventions have the greatest impact on noncognitive skills. Our discussion refocuses the policy analysis of skill formation on an important and neglected dimension. Test scores, as used by Krueger and others to evaluate the effectiveness of educational policies, measure only a small part of the skill formation process.

- The new evidence we present on the importance of noncognitive skills, coupled with our evidence that noncognitive skills can be improved, suggests that defective early environments can partially be remedied, but at a high cost. Full remediation may be possible, but there is no evidence that it is feasible.

- The evidence that family income affects schooling is intrinsically ambiguous. Any
influence found for family influence on schooling can be due to short-run credit constraints or to long-run family factors. This issue is very important. Current policy on educational shortfalls is guided by a short-run credit constraint point of view that attributes shortfalls in education to shortfalls in family resources during the child’s late adolescent years. This point of view focuses attention on tuition subsidies and family income subsidies as vehicles for eliminating educational deficits. We show that most of the shortfall in educational attainment is properly attributed to long-term family influences that cannot be rectified by tuition and family income policy focused on a child’s adolescent years. To substantially eliminate educational gaps, we have to remedy the early cognitive and noncognitive skill deficits. That said, we present original evidence that suggests that up to 8 percent of American youth may be constrained in the short-run sense just defined. Blacks are among the least constrained group. Although targeted tuition and aid policies are cost effective, they will not substantially reduce gaps in college enrollment or attainment.

• Public-sector job training programs are not generally effective, although a few components of these programs, such as classroom training, are. The returns to public-sector job training are sufficiently low that it cannot be counted on to reverse years of neglect by parents and schools. Krueger disregards a large body of evidence that supports this point of view (see Heckman, Lalonde, and Smith 1999).

• Tax policy is unlikely to be an effective way to boost skills, although it can raise wages.

We now turn to a point-by-point response to the main points of our discussants. We conclude with additional comments on Krueger.
We thank Hanushek for reading our chapter carefully and noting the differences between our chapter and Krueger’s. We agree with him that pursuing the Krueger approach of “more of everything” without any structural reform in education or job training is unlikely to be fruitful.

Hanushek’s discussion of schooling quality is insightful. It usefully frames the discussion. Expenditure and schooling quality have increased over time, but measures of achievement have not. Table 2.5 supports Hanushek’s contention that more of the same type of policies advocated by Krueger will not solve our skill formation problem. Indeed, that table shows that the quality improvement policies advocated by Krueger do not pass a cost-benefit test. We would amend Hanushek’s brief by noting that family quality has declined in the recent decades, and this likely contributes to the poor performance of public schooling (see figure 2.18).

Our evidence shows that family quality substantially contributes to the formation in children of the cognitive and noncognitive skills that determine success in school. The precise mechanisms through which families contribute to the formation of these skills needs much further exploration. We urge Hanushek and other researchers to use both cognitive and noncognitive measures to evaluate the performance of public education.

**Borjas**

Borjas makes the point that migration policy could boost the wages of native-born Americans. Partly in response to his remarks at the debate, we consider how much of the slowdown in the growth of the educational attainment rates of recent cohorts can be explained by migrants. Figure 2.2c demonstrates that immigrants are major contributors to the growth in the effective high school dropout rate. The slowdown in college participation in American society, however, cannot be attributed to immigrants (figure 2.2a), as this
slowdown occurs among native-born Americans.

Borjas’ proposal to limit migration of the unskilled is potentially promising. If implemented, it would boost wages of low-skilled native born Americans. Given, however, that Mexicans are the major source of unskilled migrant labor in the United States and that the U.S. border with Mexico is porous, we doubt the practicality of Borjas’s suggestion.

**Lynch**

Lynch finds numerous points in common between the two chapters. Many of the points she attributes to both chapters, are however, systematically developed only in our chapter.

We reject her bathtub comparison. Our chapter is about both stocks and flows. We evaluate policies to improve the quality of the intake and to remediate the skills of neglected persons. We point out that, on cost-benefit grounds, many adult remediation programs are ineffective. This is especially true for those aimed at older workers and the less able.

We welcome her attempt to broaden the analysis of human-capital policies. Part of the cost of a mother’s working may be the developmental time she does not spend with her child. This suggests that a neglected cost of the two-decade-long decline in male real wages for the unskilled that drove many women into the workforce may be a decline in the quality of their offspring. Although the evidence on this point is far from clear, we would welcome more support for it.

We agree with Lynch that Krueger’s evidence on the effectiveness of public training is flimsy and selective. He systematically ignores a large body of empirical evidence that shows the ineffectiveness of public training. Public training programs cannot remedy early skill gaps.

We also agree with her that much more work needs to be done to evaluate private-sector programs, although she is unduly modest about her own contributions. Note, however,
that the evidence presented in table 2.12 shows that private training is a disequalizing institution. More-able people get more of it. Skill begets skill.

Katz

Figure 3.7 is important. It stimulated us to revise our chapter. We agree with Katz that explaining the slowdown in college attendance is an important unsolved problem. To this point we add evidence on the growth in the effective supply of dropouts.

Katz does not discuss our substantial treatment of the evidence against the importance of short-run credit constraints in accounting for schooling gaps. He chooses to interpret Card’s evidence that IV estimates of the returns to schooling exceed OLS estimates as proof that short-run credit constraints are operative. As we summarize in our chapter and develop in Carneiro and Heckman (2002), such evidence has no bearing on this question because the instruments used in the literature are systematically biased toward finding IV > OLS, even though there are no credit constraints; comparative advantage in the labor market can produce this result; (c) the argument neglects the choice of schooling quality. Krueger suggests that comparative advantage in the labor market is a contrived explanation, contrary to a large body of evidence summarized in Sattinger (1993). We do not deny the existence of short-term credit constraints. We deny their quantitative importance, although we show that policies targeted toward the truly constrained are likely to be cost effective.

We like Katz’s point that the criminal-justice system is a major factor in producing educational disparity (especially the disparity between blacks and whites) and that investments in education may reduce crime. A major point we make in our chapter is that early childhood and young-adult mentoring programs have large effects in reducing crime through fostering noncognitive skills. Donohue and Siegelman (1998) show that high-quality preschool programs targeted toward disadvantaged black males would more than pay for their
cost in reduced incarceration expenses. The analyses reported by Lochner and Moretti (2001) demonstrate the importance of education in reducing crime. Data limitations prevent them from studying the impacts of cognitive and noncognitive skills that have been found to have an important influence on crime. As our chapter shows, these abilities are fostered by families and emerge early. They can also be produced by high-quality interventions.

Katz’s discussion of residential segregation is interesting but incomplete. He does not specify particular causal mechanisms through which neighborhood and peer effects are supposed to operate. He proposes no specific intervention except locating children in better neighborhoods with better peers. There is no discussion of how many disadvantaged persons can be moved to more advantaged neighborhoods without diluting the beneficial peer effects. No cost-benefit or social-welfare analysis is conducted, so it is difficult to gauge the overall benefits of his proposal. Thirty-five years ago, busing programs were proposed to enable poor people to benefit from better peers. No tangible benefit of these programs was ever documented, although disruptions to communities were documented. Perhaps Katz is right. But before the social engineering he advocates is implemented, we hope that his evidentiary base is substantially strengthened.

**Summers**

Summers does not give us credit for making many of the points that he faults Krueger for not making. We show the importance of accounting for the social opportunity cost of funds in evaluating job training programs (see table 2.13). In addition, we show how alternative treatment of the duration of program benefits critically affects cost-benefit calculations.

We agree with Summers that general-equilibrium effects are potentially very important. Heckman, Lochner, and Taber (1998a, 1998b, 1998c, 1999) and Heckman (2001) demonstrate how accounting for general-equilibrium effects greatly affects the cost-benefit
ratios computed for various policies. As we discuss in our chapter, and as is noted in the papers we cited, a partial-equilibrium treatment effect framework can be highly misleading in evaluating policies.

We also agree with him that recognizing the synergistic nature of human-capital investment vitally affects the way we think about human-capital policy. Recognizing that skill begets skill causes us to suggest redirection of investment to younger ages, especially for children from disadvantaged environments. We further agree with him that the slowdown in college participation rates across cohorts (see figure 2.1) is a problem of great concern for the growth of productivity and output in the American economy in the coming decades.

Summers reminds us of the well-known and valuable point that the rate of return can be a misleading guide for evaluating human capital. As we note in appendix 2A, for many human-capital projects with payoff streams that cross once, use of the rate of return to rank projects is appropriate. Schooling payoffs fall into this category as long as we ignore option values in sequential investment programs (Heckman, Lochner, and Todd 2001). As is well known, if payoff streams cross more than once, the internal rate of return is often an inappropriate criterion. We offer an example in that appendix of a preschool program with a 7 percent internal rate of return and a job training program with a 25 percent rate of return in which the preschool program has the higher present value of net benefits and so should be preferred. To avoid problems arising from the potential for the use of rate of return to lead to misleading results, we use present values wherever possible to evaluate alternative projects.

Krugman

We believe that the evidence that Krugman presents is very selective. We offer two examples.

Krugman’s discussion of the evidence from the JTPA study ignores the evidence documented in a U.S. General Accounting Office (1996) report in a five-year follow-up
study of that program. He claims that a reanalysis of the JTPA study shows that it had substantial positive effects on youth wages and income. We question his use of the underlying JTPA data. The GAO data that Krueger combines to produce an overall positive effect for youth show no statistically significant treatment effects for either subgroup (male youth or female youth) five years after participating in the program (see table 4.1). The only positive news from the GAO study is that the large negative effects found for the male youth in the early years of the study seem to vanish five years after training is completed. Otherwise, the long-term follow-up tells the same dreary story of general ineffectiveness that has been found in the job training literature around the world.

Krueger’s enthusiastic endorsement of the Job Corps is also based on a selective reading of the evidence. Job Corps is a GED factory. As quoted in our chapter, the official report on the Job Corps evaluation indicated that there was no statistically significant effect on participant earnings over a four year period. All of the large effects that Krueger finds come from extrapolating four-year impacts indefinitely, ignoring the high rates of depreciation reported in the literature on job training. As Cameron and Heckman (1993) show, the receipt of GED is not the same as completing schooling, and treating GED certification like schooling (with no depreciation) ignores the negligible long-term effects found for GED certification.
References


