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The effect of cognitive and non-cognitive abilities on labor market outcomes and social behaviors

James J. Heckman, Jora Stixrud,
and Sergio Urzua

An individual's success in the workplace and life is determined by skills that are related to knowledge acquisition (cognitive) and characteristics such as charisma, responsibility, and initiative (non-cognitive). These skills influence individuals from an early age and have direct and indirect effects on economic well being and a host of socioeconomic factors, including participation in risky behaviors.

A major public policy designed to address cognitive skill deficits among low-income adults is the high school equivalency diploma (GED). One puzzling fact is the research that indicates individuals who earn a GED score the same on achievement tests as high school graduates who do not go to college; however, GED recipient income is much more comparable to the income of high school dropouts. These facts point to the possibility that GED recipients may have lower levels of non-cognitive skills, and this skill deficit leads to lower earnings and other behavioral outcomes.

Our research uses data from the National Longitudinal Survey of Youth 1979 to determine the effect of cognitive

and non-cognitive skills on labor market and socioeconomic behavior. Cognitive skills were derived from the Armed Services Vocational Aptitude Battery. The composite score from this test can then be used to calculate an Armed Forces Qualifications Test score, which has been widely used to measure cognitive ability. The Rotter Locus of Control Scale, which measures how much a person feels like he controls his life, and the Rosenberg Self-Esteem Scale contribute to the data measures of non-cognitive skills.

We find that non-cognitive as well as cognitive skills can affect personal preferences and the ability to acquire new skills, thereby indirectly affecting income. These latent (or unobserved) skills can also affect an individual's efficiency and productivity. This research explains the puzzle in the literature that GED recipients look like high school graduates in terms of achievement tests but appear like high school dropouts in terms of earnings. This is due to the fact that the non-cognitive skills of GED recipients are lower than students who drop out of high school and do not earn the GED. Low, non-cognitive abilities make GED recipients less appealing in the labor market, and they are less likely to get a job or have valuable work experiences.

We also find that cognitive and non-cognitive skills also influence decisions about schooling and occupational choices made by individuals. Latent skills also influence decisions to participate in risky behavior. While the assumption that a latent cognitive factor influences these areas of life is widely accepted, the idea that latent non-cognitive skills can directly and indirectly affect behavior is not

well established. It is notable that non-cognitive skills affect socioeconomic behavior equally or sometimes more than cognitive skills. Increasing an individual's non-cognitive ability dramatically changes the socioeconomic outcome for the better.

It is also clear from our earlier research (Carneiro and Heckman, 2003; Cunha, Heckman, Lochner, and Masterov, 2006; and Heckman and Masterov, 2004) that cognitive and non-cognitive

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Editor's note: This issue highlights research published in the July 2006 edition of the *Journal of Labor Economics*. Dr. James Ziliak, director of UKCPR, served as the guest editor of the July 2006 issue. Working paper versions of these research synopses are available at www.ukcpr.org/Insights.html.

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Letter from the director

—By James P. Ziliak—

This issue of *Insight on Southern Poverty* is a slight departure from previous issues, which have focused exclusively on research funded by UKCPR or related directly to the 16-state, Southern region of the United States. In this issue, we focus on research that appears in this July 2006 issue of the *Journal of Labor Economics*. The special issue of the Journal, in which I serve as guest editor, contains selected papers from a conference co-sponsored by UKCPR in October 2004 to celebrate the research contributions of my late colleague and founding member of the UKCPR Executive Committee Mark C. Berger. This research has much relevance to issues of poverty for the nation.

We lead with research by James Heckman, the Nobel Laureate in Economics in 2000, and his collaborators Jora Stixrud and Sergio Urzua at the University of Chicago. Their research on the effects of cognitive and non-cognitive ability on a variety of socioeconomic behaviors is most intriguing. They show that non-cognitive characteristics such as charisma and initiative have an important impact on economic well-being and involvement in risky behavior. Indeed, non-cognitive traits may be as important as cognitive skills. Even though average GED recipients have cognitive skills similar to high school graduates, they suffer from a non-cognitive skill deficit that substantially dampens their wages. This result is complemented by another paper by Heckman and Paul LaFontaine, who show that, after controlling for observed and unobserved skills of workers, the return to a GED is negligible.

V. Joseph Hotz, Guido Imbens, and Jacob Klerman's research looked at California's approaches to welfare-to-work programs. They compared programs that focus on long-term human capital development approaches as opposed to short-term labor force attachment approaches. While programs that focused on the short term LFA approach were touted as the better approach because of the immediate increases in employment among wel-

fare recipients, these researchers show that the long-term approach of educating workers and improving job-related skills has a more lasting impact in integrating welfare recipients into the workforce. A second study presented in this issue, by Andrew Dyke, et al, reinforces the notion that human capital development approaches are a superior policy alternative. The researchers analyze welfare-to-work approaches for TANF recipients in Missouri and North Carolina. The results indicate that short-term programs have insubstantial long-term impacts on earnings, while the more intensive training programs provide greater earnings increases in the long run.

Katherine Baicker and Amitabh Chandra's studied the labor market effect of rising health insurance premiums. With the ranks of the uninsured expanding in the United States it is important to understand how the labor market responds to changes in health care benefits. They find that the cost of rising premiums significantly lowers employment and the rate of pay, and increases the number of uninsured workers.

Donald Kenkel, Dean Lillard, and Alan Mathios analyze National Longitudinal Survey of Youth data for a link between schooling, smoking, and obesity. They find that high school completion results in a lower probability of smoking and that health returns to GED receipt are lower than high school completion.

Several research briefs focus more on methodological issues or the functioning of labor markets. A study by Christopher Bollinger and Barry Hirsch examines how researchers can deal with problems of imputed values in Current Population Survey data, which is the key resource for national statistics on poverty and inequality. John Barron, Mark Berger, and Dan Black look at the likelihood that a firm will make a counteroffer to an employee to retain that individual. Black and Jeffrey Smith provide a series of statistical approaches to determining the return to college quality.

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A re-analysis of the California GAIN program

V. Joseph Hotz, Guido W. Imbens,
and Jacob A. Klerman

States have sought to reduce dependency on welfare and promote work as part of a national effort to revise the welfare system. Two approaches have emerged at the state level to deal with welfare-to-work requirements, and the effectiveness of these approaches have influenced public policy aimed at alleviating poverty. The Human Capital Development (HCD) approach emphasizes education and vocational training, seeking to improve job-related skills. Labor Force Attachment (LFA) -- which seeks to move adults into jobs quickly -- teaches resumé preparation, interview skills, and provides assistance in finding jobs. Understanding which approach is better for the long-run economic status of former welfare clients is critical for optimal public policy aimed at this disadvantaged population.

The LFA approach, sometimes referred to as “work first,” gained traction in statehouses across the country in the mid 1990s after an evaluation of California’s Greater Avenues to Independence (GAIN) program by the Manpower Demonstration Research Corporation (MDRC). Under the program, California’s counties had considerable discretion in designing programs, some of which emphasized HCD services and others that emphasized LFA services. The results of MDRC’s evaluation of the 6-county experiment where some clients were randomly assigned into welfare-to-work services often have been interpreted as favoring the LFA approach. A possible limitation of this conclusion stems from attributing all of the differences across counties to differences in the approaches used, even though other factors such as local economic conditions, program components, and population served also need consideration.

In this paper we re-evaluate the results of the MDRC GAIN evaluation in two ways. First, we examine how MDRC’s original estimates of program impacts for the three-year, post-random-

ization period change once one controls for mitigating factors such as local economic conditions and program components. Second, we examine the long-run effectiveness of HCD versus LFA by conducting a nine-year follow-up of program participants. Our results are striking. What was originally characterized as an advantage of LFA over HCD in the first three years after randomization was largely driven by better economic conditions in Riverside County. In the longer-run we find evidence that the HCD approach is superior to the LFA approach for employment outcomes.

MDRC GAIN evaluation

For our study we focus on four of the six California counties (Alameda, Los Angeles, Riverside, and San Diego) originally analyzed in the MDRC evaluation. There are notable differences in the demographic and pre-randomization characteristics of the cases across counties. These differences stem from variation in caseloads and strategies for registering participants into GAIN activities. The counties also differed in labor market conditions immediately prior to random assignment, which may also account for differences.

The four counties also differed in the way they ran the programs and in the training components emphasized. Riverside County placed less of its registrants in HCD than other counties during the period of enrollment. They also experienced notable changes in labor market conditions over the nine-year, post-randomization period. The employment rates for all sectors of the economy declined markedly in the first 3-5 years and did not recover until years 6-9. A similar pattern characterized the employment in the state’s retail trade sector over the post-randomization period with one notable exception, Riverside County, where retail employment grew steadily.

Long-term effects of HCD vs. LFA

The estimated impacts of Riverside’s program are consistently larger and more likely to be statistically significant, compared to the other three counties during the first three years after random assign-

ment. This apparent success of Riverside contributed to why it has been heralded as a model program. In the longer run, however, the impacts on employment for Riverside diminished. In years 4-6, Riverside registrants experienced a 6.9% annual average gain in employment (down from 13.6%) and 0.25 quarters worked (down from 0.43) over the control group. For years 7-9, Riverside had an average annual gain of only 1.5% in employment and 0.08 quarters worked per year relative to the control group.

In contrast, the estimated impacts for the Los Angeles program increased in magnitude in years 4-9 for both measures of employment. On average, the Los Angeles program increased annual employment 3.3% and the number of quarters worked by 0.10 per year in years 4-6. We also note that the average employment rates and quarters worked per year for Riverside consistently declined in magnitude over the 9-year period.

The economic outcomes for the experimental group in Riverside County actually declined after year three. In contrast, the mean economic outcomes for the experimental group in Los Angeles County improved after year three. Based on these estimates, the advantage of LFA relative to HCD training largely vanishes in the longer run. We also find statistically significant estimates in favor of HCD training for annual earnings starting six years after random assignment.

Conclusion

We find evidence of longer run advantages of HCD over LFA training for the employment prospects of program participants in California’s GAIN program. We find that the LFA approach, at best, has only short-run advantages over HCD. Much of what has been interpreted as the advantage of LFA appears to stem from the relatively better local labor market conditions in Riverside. We present evidence that, in the longer run, HCD yields higher employment rates than LFA and that longer-term advantages of HCD for economic outcomes

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The effects of welfare-to-work program activities on labor market outcomes

Andrew Dyke, Carolyn J. Heinrich,
Peter R. Mueser, Kenneth R. Troske,
and Kyung-Seong Jeon

Welfare-to-work programs are usually funded with the expectation that services will help clients find jobs and increase their skill levels. Studies examining the effectiveness of these state programs, however, present mixed findings. Conflicting findings have fueled a debate over whether it is more effective to provide intensive, long-term training to welfare recipients or to help participants move into the work force as quickly as possible. Welfare reforms of the mid 1990s functioned on the premise

that welfare recipients needed jobs more than training to be successful in the labor market, while more recent studies seem to indicate that long-term training appears to be more effective than work-first programs (Barnow and Gubits, 2002; Hotz, Imbens, and Klerman, 2006) or that the most effective welfare-to-work programs combine work-first and intensive training strategies in a flexible way (Bloom and Michalopolous, 2001). This research seeks to improve on past studies to identify the effects of the distinct sub-programs of welfare-to-work training in both Missouri and North Carolina.

Data for this study come from female welfare recipients in the Temporary Assistance for Needy Families (TANF) programs in Missouri and North Carolina. Earnings data are reported by employers and is merged with state administrative records, which include demographic and household information. Recipients were tracked for 16 quarters after entering the welfare system, and their quarterly earnings were compared to demographic characteristics and the particular types of welfare-to-work programs in which they participated.

Any earnings impact in a particular quarter is assumed to result from the most intensive level of training that was received to date by the participant. Welfare-to-work training is divided into three categories: assessment only, job-readiness or job-search activities, and more intensive training.

Effects of work component participation

Calculations of the effects of each type of training on earnings focus primarily on a comparison of individuals who participated in assessment only versus individuals who participated in job search/readiness training and intensive services. See Table 1 for work component activities. There is no evidence at all to suggest that job search/readiness provides any earnings benefits to the individual in the long or short term. In Missouri, participants experienced a reduction in earnings in the quarter of service and the quarter immediately following, with

earnings progressively increasing but not substantially. The pattern of effects is similar for North Carolina participants, though the effects are smaller than those of Missouri. Individuals in both states who receive job search services experience very little earnings gain after participating in the program compared to individuals who are only assessed.

Individuals who receive intensive services, such as basic education or vocational skills training, experience a steady increase in earnings after participation in comparison to those who are only assessed. In the long run, it is clear that intensive training programs produce higher benefits than the short-term job search programs.

Conclusion

Results from this research indicate that short-term job search/readiness programs have insubstantial long-term impacts on earnings, while the long-term, more intensive training programs provide greater earnings increases than short-term programs, though there are initially substantial negative effects. Those negative effects turn positive within two years of training and appear to persist. These results imply that the current emphasis on short-term work-first programs may not have the best long-term results for recipients, and that more attention should be given to programs that will enhance human capital. It is also clear that when evaluating long-term welfare-to-work programs, participants must be assessed for an extended period of time, since there are initial negative effects.

The pattern of earnings returns for long-term welfare-to-work programs is similar to other human investments, like a college education, in that they sometimes require an extended period to appear. A short-term perspective in evaluating earnings underestimates the benefits of intensive training and has the potential to stunt possible earnings growth for welfare-to-work program participants. Overall, more intensive training programs for welfare-to-work participants produce larger and more consistent earn-

(Continues on next page)

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The intent of this publication is to provide non-technical summaries of research related to poverty issues. Summaries of research not funded by UKCPR are published with permission of the authors. Please consult provided links for full reports. Any inconsistencies between these summaries and the full research reports are the responsibility of this publication.

ABILITIES

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abilities are acquired at a young age and that parental involvement in lives of children supplements acquisition of abilities. Since cognitive and non-cognitive skills cultivated early in life are vital to socioeconomic development, general racial, social, and financial differences begin influencing groups very early and continue throughout life.

Evidence of early development of cognitive and non-cognitive skills can be garnered from “early interventions,” like high-quality childcare centers, such as the Perry Preschool Project, which mitigate some of the educational hardships faced by children born into disadvantaged environments.

Conclusion

Both cognitive and non-cognitive abilities determine social and economic success; non-cognitive ability is as im-

portant, if not more important, than cognitive ability, for many labor-market and socioeconomic behaviors. This evidence challenges a pervasive view in economics and psychology literature that cognitive ability, as measured by test scores, is dominant in explaining personal achievement. Non-cognitive skills are about as strong in many outcomes and stronger for some.

A special challenge is assessment of the GED program. GED recipients have higher cognitive abilities than other high school dropouts but have lower non-cognitive skills. The demonstration that non-cognitive skills are important in explaining a diverse array of behaviors helps to explain why early childhood programs and parental involvement are effective in the lives of children.

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Dr. Heckman is the 2000 Nobel Laureate in economics. Jora Stixrud and Sergio Urzua are grad students at the Univ. of Chicago.

WELFARE-TO-WORK

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ing returns than short-term strategies designed to get participants into the work force quickly.

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Table 1

Work component activities duration and intensity

Activity	Missouri				North Carolina			
	Duration (Weeks)			Median Hours per Week	Duration (Weeks)			Median Hours per Week
	25th Percentile	Median Duration	75th Percentile		25th Percentile	Median Duration	75th Percentile	
Assessment	1.6	4.9	59.7	20	0.0	1.4	4.3	3
Job search and job readiness training	1.6	4.4	23.0	25	2.4	4.9	10.3	20
Work experience	1.9	6.4	28.1	20	2.4	5.7	12.1	26
Basic education	1.6	5.9	30.9	20	4.1	8.4	15.0	20
Vocational and technical skills training	2.6	9.4	44.4	25	2.7	6.3	13.0	35
Post-secondary education	3.6	19.3	116.4	17	7.4	13.8	24.5	42.5

Note: Statistics are based on all work component activities that begin in the quarters 1997:2-2000:2 in Missouri and 1997:2-2001:4 in North Carolina for TANF payees who are females, aged at least 18 but less than 65, in the single parent program and not in child only cases.

The labor market effects of rising health insurance premiums

Katherine Baicker
and Amitabh Chandra

With growing ranks of uninsured Americans, coupled with varied policy proposals to address this crisis including so-called employer mandates requiring firms to cover eligible workers, identifying links between health insurance costs and labor market outcomes is of utmost importance. Figure 1, utilizing data from the Medical Expenditure Panel Survey for 1996-2002, illustrates (in 2001 dollars) the steady growth in premiums for family and single premiums over this period. Family premiums grew from an average of \$5,000 in 1996 to more than \$8,000 in 2002. Premiums for single policies also grew substantially—from an average of \$2,000 in 1996 to more than \$3,000 in 2002.

Increases in health insurance premiums may have significant effects on labor markets, including changes in the number of jobs, hours worked per employee, wages, and increased numbers of uninsured workers. The cost of increases in health insurance premiums may be borne by workers through decreased wages for those with employer health insurance (EHI) and decreased hours for those moved from full time jobs with benefits to part time jobs without. One of the driving factors underlying rising health insurance premiums is the increase in physician premiums for malpractice insurance. We utilize the dramatic increase in malpractice costs for physicians in some states to uncover the causal impact of increases in health insurance premiums on labor market outcomes.

Health insurance and labor markets

Data for our analysis are taken from the 1996-2002 March CPS for information on demographics, labor market variables, and health insurance coverage. Because premiums from last year are expected to affect current labor market outcomes, hours worked, full-time/part-time status, and unemployment during

the reference week of the survey are measured. All respondents ages 22-64 are included.

An examination of the effect of increases in health insurance premiums on employment, wages, and hours worked suggests that a 10% increase in premiums leads to a 0.9% decrease in wage and salary income and a 2.4% decrease in hours worked. There is a large effect of premiums on hours worked – coming partly from increases in the probability of unemployment but also through increases in the probability of part-time work. This is consistent with the expectation that as the cost of providing health insurance benefits increases, firms will replace full-time workers with part-time workers who have limited benefits. The data show 22% of part-time and 64% of full-time workers have EHI. Consistent with the reduction in full-time jobs, there is also an overall decline in employment rates.

Certain groups are expected to be more sensitive to changes in the cost of health insurance. In fact, all of the reductions in income are borne by employees with health insurance. A 20% increase in health insurance premiums (smaller than the increase seen in many areas in the last 3 years) would reduce the probability of being employed by 2.4%—the equivalent of about 3.5 million workers. A similar number of workers would move

from full-time jobs to part-time, reducing the average number of hours worked per week by a little over an hour. Annual income would be reduced by \$1,700 for those who are employed and have EHI.

Conclusion

Rising health insurance premiums, unemployment, and the number of people without insurance have led to increased scrutiny of the consequences of rising costs of health benefits. Our study finds that the cost of increasing health insurance premiums is borne primarily by insured workers in the form of decreased wages. An increase in part-time work is also observed. Groups such as married women, who are likely to have a lower value for EHI, are more likely to lose coverage as premiums rise.

If EHI mandates raise the cost of employing workers, most workers will bear the cost through reduced wages. If some classes of workers are exempt from the mandate employers are likely to substitute uncovered jobs for covered ones, undermining the net effect of the mandate on insurance rates. If current trends continue unabated, rising health insurance premiums will place a greater burden on workers and increase the ranks of both the uninsured and the unemployed.

Dr. Baicker is an associate professor in the School of Public Affairs/ Public Policy at UCLA. Dr. Chandra is an assistant professor of public policy at Harvard University.

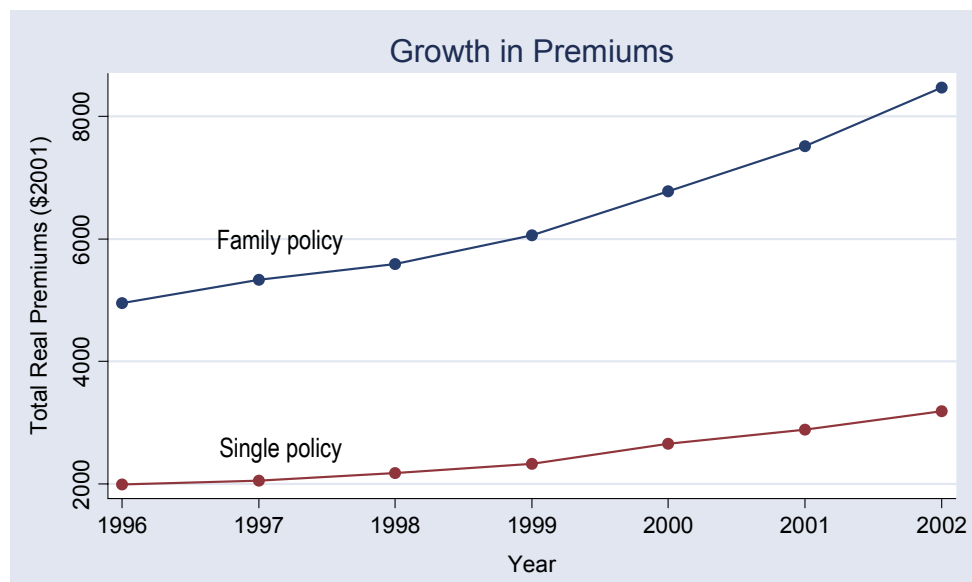


Figure 1: Data from Medical Expenditure Panel Survey. Premiums expressed in year 2001 dollars.

The roles of high school completion and GED receipt in smoking and obesity

Donald Kenkel, Dean Lilliard,
and Alan Mathios

The link between education attainment and positive health outcomes such as lower rates of smoking and obesity is well established empirically. For example, GED recipients rank as the most likely group to currently smoke, 10% more likely than dropouts. In 1997-1998 only 9% of males and 8% of females with graduate degrees smoked, as compared to 38% of male and 30% of female dropouts (Schoenborn, Vickerie and Barnes 2003; Schoenborn, Adams and Barnes 2002). Moreover, more than half of female dropouts are overweight, and the percentage drops steadily as schooling levels increase. The disparities in smoking behavior and obesity across different schooling levels have continued to increase over time, despite the propagation of information about the negative consequences of both behaviors.

Whether the association between schooling and health is causal or not is subject to debate. One possible causal link is through health knowledge, where having an education helps people react to health information about smoking and obesity. On the other hand, the relationship between health and schooling may not be causal, but instead may reflect unobserved differences between individuals with different educational backgrounds. Indeed the results showing that GED recipients are more likely to smoke than their dropout counterparts is consistent with evidence supporting the notion that while GED recipients tend to have more cognitive skills than dropouts, they tend to lack non-cognitive abilities required to make good decisions (see Heckman, Stixrud, and Urzua in this issue, page 1). Although these differences may be difficult to perceive, they are undoubtedly related to health decisions and behaviors.

This study uses data from the National Longitudinal Survey of Youth (NLSY) to examine links between schooling, smoking, and obesity. Our results sug-

gest that one key component of the return to high school completion is a lower probability of smoking. Although we find little evidence that high school completion is associated with lower probability of being overweight or obese for either men or women, we do find that the health returns to GED receipt are much lower than high school completion.

Schooling, smoking, and obesity

In our analysis we focus on four health behaviors: 1) the probability of being a current smoker (27% of males and 24% of females); 2) whether the individual has ever smoked at least 100 cigarettes (41% of males and 44% of females); 3) the probability of being overweight, i.e. a body-mass index (BMI) of at least 25 (62% of males and 55% of females); and 4) the probability of being obese, i.e. a BMI of at least 30 (25% of males and 27% of females). See Table 1, below. The two key explanatory variables measure the level of schooling and designate those who completed high school from those who received the GED. Calculations indicate that about 71% of males report high school completion and about 16% report GED receipt, while about 76% of females report high school completion and about 14% report GED receipt.

The results indicate that there are significant health returns to high school completion; both males and females who graduate from high school are less likely to smoke. For example, while 47% of male dropouts smoke, only 21% of male high school graduates smoke, and smokers who complete high school are much more likely to quit. The results also suggest that there are no weight-related returns to high school completion. Those who receive a GED smoke more than high school graduates, and there is nothing to indicate that receiving the GED can be linked to weight-related health returns. It does seem that individuals with parents who completed more schooling tend to have less weight-related health problems. This correlation is especially

strong for females whose mothers have completed higher levels of education.

Conclusion

It is clearly important to differentiate GED recipients from high school graduates when estimating health returns to school, much like estimating economic returns to schooling. Although high school completion does not seem to decrease the probability of being overweight, it does decrease the probability of being a smoker. The health returns to GED receipt are significantly lower than the returns to high school graduation, suggesting a positive benefit in terms of improved health for those who complete a formal high school education.

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The authors are from Cornell University. Dr. Kenkel is professor of policy analysis and management. Dr. Lillard is a senior research associate with the College of Human Ecology. Dr. Mathios is professor of human ecology.

GAIN EVALUATION

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can be sizeable. It is not known if these results are generalizable to other states or periods, but they are suggestive that the path to long-term self sufficiency among welfare recipients is paved with formal human capital training.

Dr. Hotz is a professor of economics at UCLA. Dr. Imbens is a professor of economics at UC Berkeley. Mr. Klerman is an economist with the RAND Corporation and director of its Center for the Study of Social Welfare Policy.

Correcting bias in estimates of returns on the GED, by James J. Heckman and Paul A. LaFontaine

Educational attainment has long been considered a pathway to better employment opportunities and higher wages. However, this is not necessarily the case with the General Education Development (GED) certification, which has grown from 2% of high school certificates in 1960 to 20% in 2001.

Some research suggests that GED certification alone does not increase economic returns for individuals, although it does provide a gateway to post-secondary education, which in turn can increase economic returns.

This research comprehensively examines the economic returns for terminal GED recipients using data from both the NLSY and CPS, and across important subpopulations such as race, gender, and birth origin. Once one corrects for missing data on earnings in the CPS and for so-called omitted ability bias the economic returns to the GED are zero. This is true for men and women across the age distribution, and for native-born and immigrant workers.

The Current Population Survey (CPS) is a nationally representative survey of American households that is collected monthly for purposes of measuring the employment and unemployment status of workers, and its large and diverse sample size make it an appealing source of data for social science research. However, several problems affect the quality of CPS data, such as lack of detailed measurement of latent ability, the inability to follow individuals for more than two times in 12 months of data, and growing percentages of non-responses to earnings questions.

This research provides new estimates of the economic returns to the GED, after correcting for allocated earnings and missing information on latent ability in the CPS.

After removing allocated wages, there is still a small but significant wage difference between GED earners and

high school dropouts. However, once we control for omitted ability bias using data from the NLSY, and by following the same CPS participants over time, there is no discernable economic return that can be attributed to GED receipt. Analysis of immigrant populations suggests that any positive economic return to immigrant GED recipients is driven by unobserved ability bias among immigrants.

This research demonstrates the importance of accounting and controlling for earnings allocation bias and ability bias when calculating economic returns to GED certification in the CPS. We find low wage returns to GED certification and little if any life-cycle wage growth for GED recipients, controlling for cognitive ability. It is also important to remember that while GED certification alone may not directly affect wages, it does provide a pathway to higher education, which in turn may affect wages positively.

Match bias from earnings imputation in the Current Population Survey: the case of imperfect matching, by Christopher R. Bollinger and Barry T. Hirsch

The March Current Population Survey (CPS) is used in constructing annual estimates of poverty and inequality in America, and it, along with the larger CPS Merged Outgoing Rotation Group (ORG) data set, is widely used by social scientists in studies of low income populations. However, the results of such research can be affected by the way the Census Bureau assigns values for non-responses to questions regarding income, which typically have high non-response rates. Methods to correct for biases in CPS data are important for poverty researchers who seek to accurately describe this population.

Agencies that report statistics often assign, or “impute,” values when a response is not provided. This research provides a set of corrections for the presence of imputed values in CPS data, demonstrates their use in several examples (available in the full report), and compares alternative approaches to ac-

count for match bias.

The CPS monthly ORG earnings files impute earnings and wages using a “cell hot deck” procedure in which Census assigns to non-respondents the reported earnings of a so-called matched donor who has an identical mix of measured attributes. Imputation has been on the rise in the ORG, with rates of about 22% in 1996 and about 30% in 2000-2004.

Bias associated with assigned attributes for non-responses (i.e., those not included as Census match criteria) is a first-order problem. Serious bias issues also arise with match attributes that are imperfectly matched.

Alternative methods to correct match bias were compared, providing evidence on wage gap estimates with respect to selected attributes that are not match criteria. The first method is to simply drop respondents with imputed earnings from the analysis. This is a transparent approach, though the smaller sample sizes likely result in less precise estimates of regression models. The second method is a two-step approach. In the first step the research computes the probability that a respondent does not have imputed earnings. In the second step that first-stage probability is used to weight the respondent data to more accurately reflect the whole population. This approach, while a bit more cumbersome than simply dropping observations, is nonetheless straightforward to implement and results in greater precision. The third method draws from complicated formulae that we derive in the paper that permits us to accurately correct for the presence of imputed values.

For the applied researcher, the simplest approach to account for match bias is to omit imputed earners from analyses of wages and other outcomes. Alternatively, one can retain the full sample and calculate corrected estimates. Although the focus has been on earnings imputation, similar issues arise for other variables whose values are imputed and used as outcome variables in empirical work.

Selective counteroffers in the labor market, by John M. Barron, Mark C. Berger, and Dan A. Black

Little is known about how frequently employers extend salary counteroffers to retain workers who intend to leave for another job. This research outlines conditions for the selective use of counteroffers by employers and provides new evidence indicating that the likelihood a firm extends a competing counteroffer is predictable.

The data are drawn from the 2001 Small Business Administration (SBA) Survey. The survey provides specific information on the last worker hired by the firm, including whether the firm would consider extending a counteroffer to retain the worker. The SBA-funded survey of employers gathered information about company characteristics and asked two key questions regarding the hiring of an employee within the prior two years. These two questions are 1) Suppose the new hire received a job offer from another company. Would you consider raising the new hire's wage to retain the employee? If the firm answered yes, the firm was then asked the follow-up question 2) What is the maximum percentage increase in wages that you would be willing to pay to retain the employee?

For 41.3% of these workers, the firm would consider a counteroffer. For 52.5% of the workers, the firm would not consider a counteroffer. The magnitude of potential counteroffers is as much as 10%. The likelihood of a counteroffer depends on characteristics unique to the job and to the specific matches between a worker and a firm, suggesting that firms adopt a "selective" counteroffer policy. A key factor affecting the likelihood of a counteroffer is the value of the retained worker. The degree of worker experience also has a substantial effect on the likelihood of a counteroffer. The data indicate that younger, less-experienced workers are more likely to receive a counteroffer than their older, more experienced counterparts.

Other worker characteristics that improve the chances of counteroffers are tenure, training, supervisory experience, and those employed at smaller firms. Interestingly, the patterns do not mirror the wages paid to workers. Younger workers and workers at smaller establishments are likely to be paid lower wages, but are more likely to receive counteroffers.

In 1990, employer discretion in the use of counteroffers was suggested by the following quote in the Aug. 7, 1990, *Wall Street Journal (WSJ)*: "To workers who get other job offers, 38% of employers say they wouldn't extend a counter bid, and 21% say they would, Management Recruiters International finds. But 38% say it all depends" (p. 1). This paper has developed a setting in which firms pursue "selective" counteroffers, one that is consistent with the *WSJ* quote claiming that an extension of a counteroffer "depends."

Estimating the returns to college quality with multiple proxies for quality by Dan A. Black and Jeffrey A. Smith

A growing literature in economics estimates the effect of college quality on the labor market. The literature estimates the inputs into schooling and outcomes that are expected, with an outcome of interest and some measure of college quality, usually along with a wealth of co-variables designed to account for non-random selection of students into schools.

This research considers the parameters, or variables, of interest in studies of college quality and the link between these parameters and the estimates in much of the existing literature. Most literature includes only a single measure of college quality, which is interpreted as a proxy for a hidden, one-dimensional, quality variable. As a result of measurement errors and variance in proxies, existing estimates of the effect of college quality may exhibit substantial biases. The research considers different ways of using multiple proxies to do better at estimating the impact of college quality.

Most of the literature adopts the following strategy. A single college quality

measure is chosen and included in outcome equations along with covariates. Most of the literature focuses on how to interpret the estimated parameter; this issue arises regardless of the chosen strategy. The existing estimates in the literature present important difficulties of interpretation and, perhaps, substantially biased estimates.

In this study, five measures of quality were examined: faculty-student ratio, the rejection rate among those who applied for admission, the freshman retention rate, the mean SAT score of the entering class, and mean faculty salaries. The relatively low correlations among various measures of quality suggest that they contain much measurement error. A regression of each quality measure accounts for 18% of the variation in the faculty-student ratio, 24% of the variation in the rejection rate, 29% of the variation in the freshman retention rate, and 25% of the variation in average SAT scores and average faculty salaries.

By using the five co-variances with the wage measure and the 10 co-variances of college quality proxies, the authors show the least noisy proxy for college quality is average SAT, which supports the frequent use of this variable in the literature. The next least noisy is the freshman retention rate, followed by average faculty salaries, the rejection rate, and the faculty-student ratio.

This research demonstrates the importance of thinking about the parameter of interest and of linking the choice of parameter of interest to the choice of estimator. The results indicate that existing literature using a single proxy for latent college quality likely underestimates labor market effects of college quality.

Using various methods, the research finds that average SAT score is the single most reliable signal about college quality. While overall college quality can be measured, quality of particular departments and programs often varies widely within a university; so, someone seeking to study labor economics may correctly have a very different quality ranking than someone seeking to study poetry.

UKCPR conference to focus on welfare reform

The UK Center for Poverty Research will host a conference focused on the impact of the Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA) since its inception in 1996.

Ten Years After: Evaluating the Long-Term Effects of Welfare Reform on Children, Families, Welfare, and Work will be held April 12-13, 2007, in Lexington, Ky., and will feature leading poverty scholars from across the nation.

The goals of PRWORA included the ending of dependence on government entitlement programs by the nation's poor and promotion of work. Much of the research in the wake of this legislation has relied on data and outcomes prior to the year 2000.

Papers presented at the April 2007 conference will rely on new research gathered during the past 10 years. Additionally, the conference will feature nationally-known experts as plenary speakers during the two-day event.

The topics tentatively planned for the dozen research presentations include the welfare reform effects on child outcomes such as school achievement and health, family well being as measured by consumption and saving, and the dynamics of welfare and work.

UKCPR also plans to produce a publication of conference proceedings.

Keynote speakers at the conference will be Dr. Rebecca Blank, dean of the Gerald R. Ford School of Public Policy and co-director of the University of Michigan National Poverty Center, and Don Winstead, deputy director of the Florida Department of Children and Families.

A complete agenda, as well as details about conference registration and attendance, will be distributed via e-mail and posted to the UKCPR Web site, when finalized. Contact Jeff Spradling at jspra2@uky.edu, phone (859) 257-7641, for further information.

UKCPR Welfare Reform Conference Speakers and Topics

A tentative schedule of the April 2007 conference includes the following speakers, presenters and papers:

Plenary Speakers

Rebecca Blank, University of Michigan National Poverty Center
Don Winstead, Florida Department of Children and Families

Scott Allard, Brown University

Mismatches and Unmet Needs: Spatial Inequality in the Safety Net.

Christopher Bollinger, James Ziliak, University of Kentucky
Welfare Reform and the Level, Composition, and Volatility of Income

Qin Gao, Fordham University;

Neeraj Kaushal, Jane Waldfogel, Columbia University
How Have Welfare Reform and the Earned Income Tax Credit Affected Family Expenditures?

John Ham, University of Southern California; Xianghong Li, York University;
Lara Shore-Sheppard, Williams College
The Impact of Welfare Reform on the Health Insurance Dynamics of Less-Skilled Women.

Alexandre Mas, Jonathan Leonard, University of California Berkeley
Welfare Reform, Time Limits, and Infant Health

Robert Moffitt, Johns Hopkins University; David Ribar, UNC-Greensboro
Welfare Transitions and Economic Outcomes for Vulnerable Families in Three Cities.

Peter Mueser, University of Missouri-Columbia; David Stevens, University of Baltimore; Kenneth Troske, University of Kentucky
The Impact of Welfare Reform on Leaver Characteristics, Employment and Recidivism.

Kevin Roy, University of Maryland; Laura Lein, University of Texas-Austin;
Linda Burton, Duke University
Children "in Good Hands?" An Ethnographic Perspective of Cross-City Variation in Child Care and Work Transitions for Low-Income Families.

Ariel Kalil, University of Chicago; Kathleen Ziol-Guest, Harvard University
Welfare Reform and Health among the Children of Immigrants.

Signe-Mary McKernan, Caroline Ratcliffe, The Urban Institute;
Yunju Nam, Washington University St. Louis
The Effect of Welfare and Individual Development Account Policies on Asset Holdings.

Pamela A. Morris, Lisa A. Gennetian, MDRC;
Greg Duncan, Northwestern University
Effects of Welfare and Work Policies on Children: Findings from Random-Assignment Experiments.

Kathleen Mullan Harris, Krista M. Perreira,
Darci Powell, University of North Carolina
Access to Public Assistance and the Well-Being of Immigrant Youth.

Funded research opportunities from the UK Center for Poverty Research

UKCPR, as one of three Federally-funded area poverty research centers, offers annual funding opportunities to researchers interested in poverty and inequality, especially in the US South. Our awards are made after a competitive review of submissions. Visit our Web site, <http://www.ukcpr.org>, for details. An excellent way to receive updates on our programs is to sign up for our list serve. To request addition, send e-mail to Jeff Spradling at jspra2@uky.edu.

Visit www.ukcpr.org for full RFPs

Regional Small Grants Program Awards up to \$20,000 each

This program seeks research proposals on poverty in the US South from faculty across the nation. Topical areas include interaction of Federal, state, and local programs and their effect on low income families, labor market outcomes, human capital accumulation, transfer-program participation, and child and family well being.

Application deadline: Dec. 15, 2006.

HBCU, TCU, and 1890s universities Awards up to \$12,100 each

This small grants program is open to faculty located at historically black, tribal, and 1890s colleges and universities who are conducting social science research on poverty, inequality, and their correlates. The competitive awards provide development funds to support new and continuing research on poverty in America. Funds may be used to support a variety of research activities such as summer salary support, academic year release time, research assistants, data, travel, equipment, or as seed money for a broader research program.

Application deadline: Dec. 15, 2006.

Young Investigator Development Grants Awards up to \$5,000 each

These awards are aimed at non-tenured, junior faculty for social science research on issues salient to low-income populations in the American South. Topics of particular interest include, but are not limited to, persistent poverty, labor-market outcomes, human capital accumulation, transfer-program participation, child and family well being, and the economic status of disadvantaged and underrepresented populations.

Application deadline: Dec. 15, 2006.

Emerging Scholars Program Supports a week-long residency at UKCPR

This program offers the opportunity for young scholars in the behavioral and social sciences to visit the UKCPR, interact with faculty while in residence, present research, and become acquainted with the staff and resources of the Center. The intent of the Emerging Scholars Program is to enhance the skills and research interests of young scholars and to broaden the corps of poverty researchers. The Center mentors scholars in quantitative and qualitative methods and a wide array of substantive areas of interest to poverty researchers. Self nominations are accepted as well as recommendations of young scholars by senior faculty.

Applications accepted until positions filled.