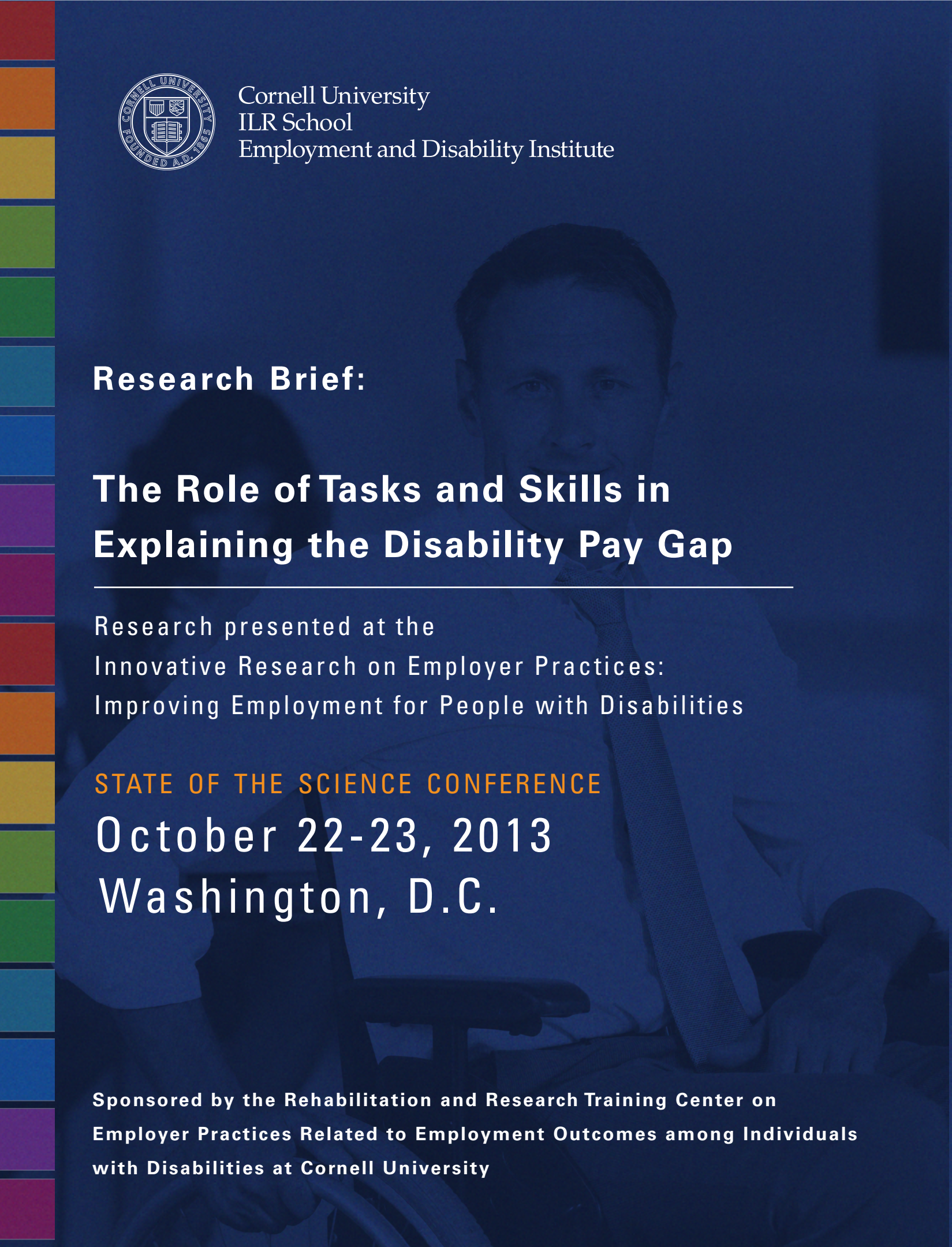


Cornell University
ILR School
Employment and Disability Institute

Research Brief:

The Role of Tasks and Skills in Explaining the Disability Pay Gap

Research presented at the
Innovative Research on Employer Practices:
Improving Employment for People with Disabilities

STATE OF THE SCIENCE CONFERENCE

October 22-23, 2013
Washington, D.C.

Sponsored by the Rehabilitation and Research Training Center on Employer Practices Related to Employment Outcomes among Individuals with Disabilities at Cornell University

Overview

A disparity in pay exists between workers with and without disabilities. This gap persists even in analyses that control for a variety of factors and incorporate compensation benefits other than wages and salaries.[1] To better understand the underlying sources of these differences, occupation-level data on employee skill and task requirements are considered. Evaluating the earnings gap with this additional information provides insights regarding the economic returns to certain workplace tasks and skills that may contribute to the earnings gap that we observe for people with disabilities.

Data Sources and Issues

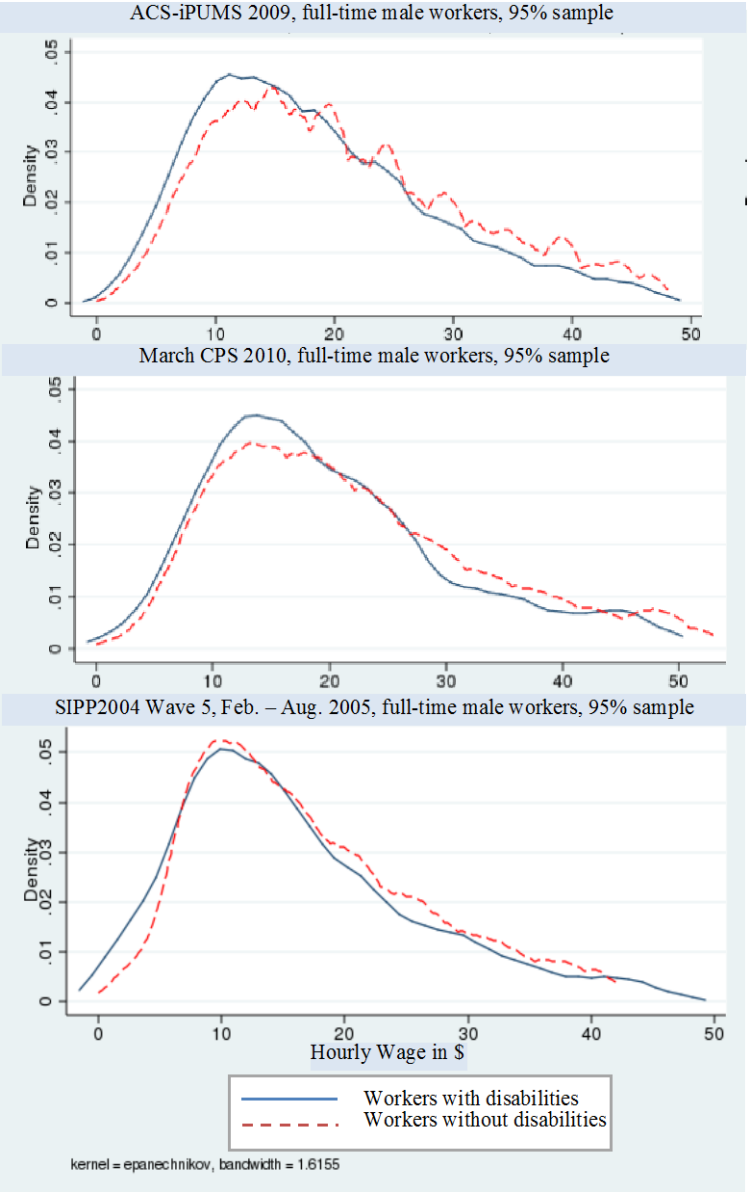
Exploring the disability pay gap is facilitated through the use of the following population-based surveys: the American Community Survey (ACS), the Current Population Survey (CPS) March Supplement, and the Survey of Income and Program Participation (SIPP). These three datasets contain individual-level demographic, income, employment, and disability details. The three figures below show the hourly wage-earnings distributions for full-time male workers with disabilities and those without across the different population-based surveys (wages/salary earnings are truncated at the top 5%).[2] From the shapes of the curves in each plot, we can see that the wage distributions are different across samples. These differences may stem from variation in sampling frameworks, earnings measures, and disability indictors across the sources.

[1] "Wage Gaps and Total Compensation Gaps by Disability Status" by Kevin F. Hallock and Xin Jin, 2013, Cornell University Working Paper. Hallock, Jin, Melissa Bjelland and Linda Barrington authored this research brief.

[2] The top 5% of wage earners are removed because there are very few of them and some have extremely high hourly earnings relative to the majority of the sample. This is done to make our sample more representative and the summary statistics free of outliers.

Distribution of Wages Across Different Population Surveys

- Kernel Density Estimates of the Distribution of Hourly Wages in the ACS-iPUMS, the March-CPS, and the SIPP.



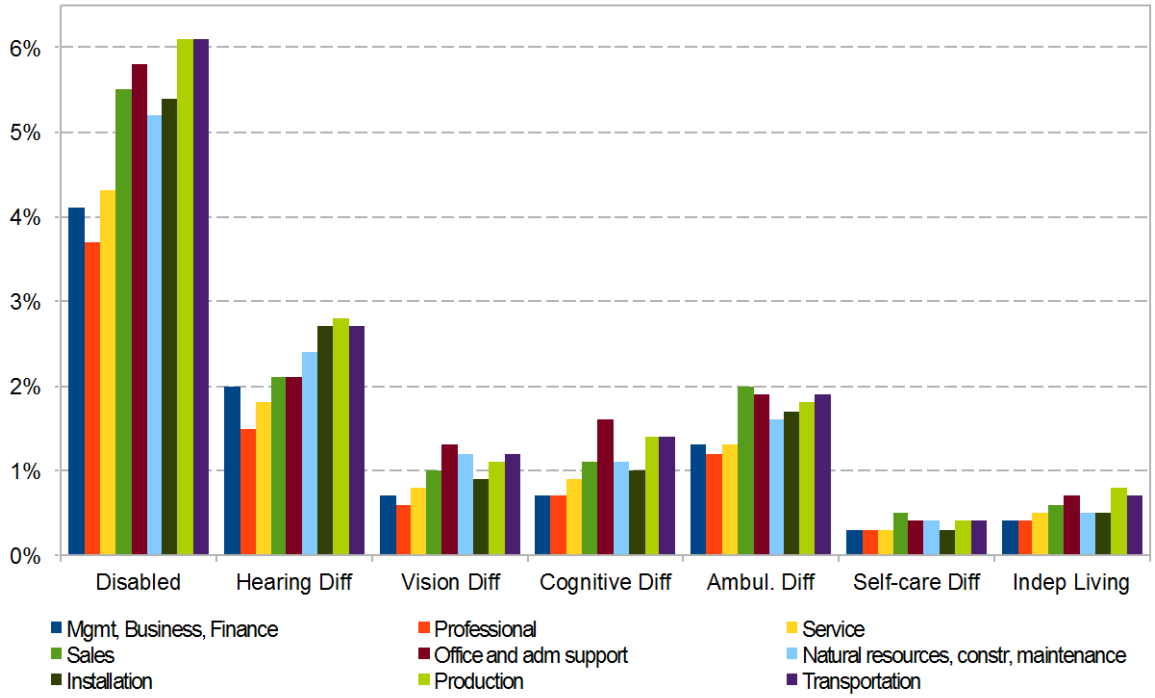
Aside from the CPS, which inquires about the dollar amount of job-related non-wage/non-salary compensation, population-based surveys generally do not attempt to measure total compensation. By merging occupation-level compensation details into these surveys from a comprehensive establishment survey, the Employer Costs for Employee Compensation database, it is possible to explore the total compensation gap using each of the three data sources.

To improve the understanding of the impact that task and skill requirements have on total compensation, measures of task and skill requirements from the Occupational Information Network (O*NET) are also merged into the three household surveys on the detailed occupational

level. Three aggregate measures of task requirements are studied: Abstract Tasks (abstract problem-solving, creative, organizational and managerial tasks), Routine Tasks (routine, codifiable cognitive and manual tasks that follow explicit procedures), and Manual Tasks (non-routine manual job tasks that require physical adaptability). In addition, five composite measures of skill requirements are considered: Cognitive Skills, Physical Strength, Basic Skills, Social Skills, and Technical Skills.

By combining the individual-level information from the three household surveys with occupation-level compensation information from the ECEC and the task and skill job requirements from the O*NET, one can study how disability status, total compensation, and job characteristics are related to the earnings gaps.

Occupational Sorting by Disability Type



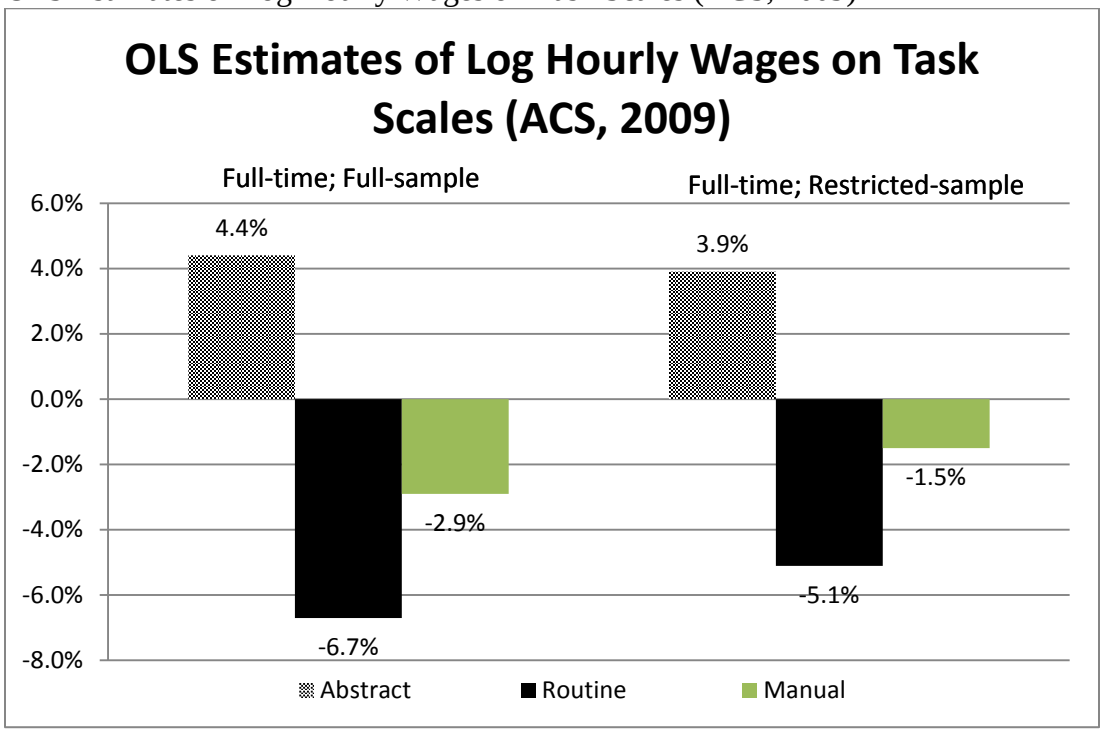
The figure above presents the fraction of full-time employed males by disability and broad occupation categories in the 2009 ACS. Of particular note is the fact that the largest percentages of people with disabilities appear in production and transportation, whereas the smallest shares appear in management, business, finance, and professional occupations. Also, workers with different types of disabilities are, on average, more concentrated in some occupations than others. For example, a greater proportion of workers with hearing difficulties works in production or transportation occupations than works in professional and service occupations. Among workers with vision difficulties, in contrast, a greater proportion works in office and administrative support or transportation occupations than works in professional or management, business and finance occupations. One explanation for this heterogeneity may be that, compared to their peers without disabilities, workers with varying disabilities may seek employment in jobs requiring different bundles of tasks and skills. Differing economic returns to these tasks and skills may contribute to the gap in earnings between those with and without disabilities.

Empirical Findings

To more thoroughly understand the persistence of the gaps in pay and total compensation between employees with and without disabilities, an empirical model is estimated that considers the relationship between pay and disability status and includes controls for occupation, labor force experience, education, industry, and demographic characteristics. Additionally, either the composite skill or task scales are included to evaluate the role of these occupational characteristics on pay and total compensation.

The ACS data reveal that people with disabilities are more likely in occupations associated with fewer abstract tasks and greater levels of routine and manual tasks. These workers tend to be in positions that require lower levels of cognitive ability, basic skills, and social skills, but more physical strength and technical skills.

OLS Estimates of Log Hourly Wages on Task Scales (ACS, 2009)

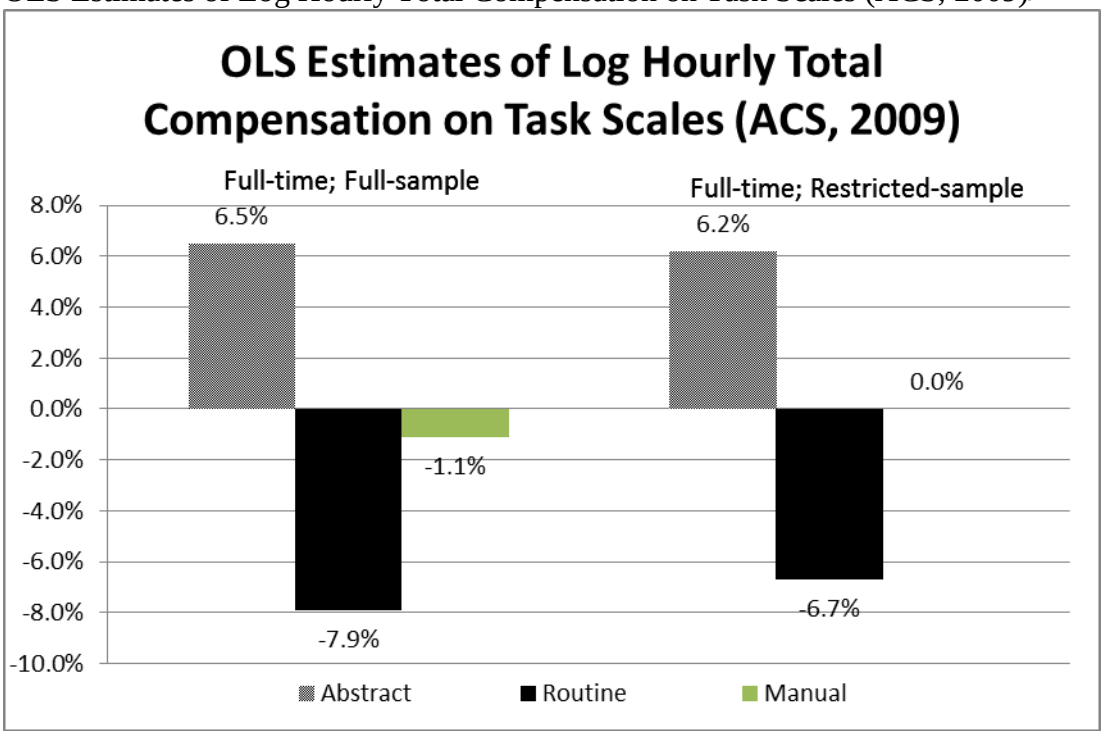


Note: Estimates for full-time male workers in 2009 ACS, controlling for schooling, experience, race, marital status, and 22 occupation groups at 2-digit SOC level.

The results of the regressions of wage (see chart above) or total compensation (see chart below) on the task or skill scales and a set of covariates for the full time, restricted ACS sample are noteworthy. Focusing on results using 22 occupational codes as controls (other sets of controls are considered in the detailed paper), it is clear that the economic return to abstract tasks is positive and the economic returns to routine tasks and manual tasks are both negative. Each dataset examined reveals these qualities. In combination with the knowledge that workers with disabilities are more likely in occupations that rate relatively highly on routine and manual tasks, this may imply that the gap in wage could be tied to these task measures that have lower rates of return. On the other hand, interacting disability status with task measures (i.e. disability times

task measure as an independent variable) suggests some evidence that those with disabilities have relatively higher (lower) pay in jobs associated with low (high) return tasks. That is, for example, although the return to routine tasks is negative, the interaction of disability status and routine tasks is positive. So, perhaps, those with disabilities select in to jobs with these characteristics since they are relatively economically better off than if they were to enter other jobs. For example, workers with disabilities may choose occupations with an emphasis on routine or manual tasks because they perceive some comparative advantage in those jobs relative to occupations that emphasize abstract tasks even though the earning returns to abstract task are higher than those to routine or manual tasks. Measuring pay as total compensation yields similar findings.

OLS Estimates of Log Hourly Total Compensation on Task Scales (ACS, 2009)[3]

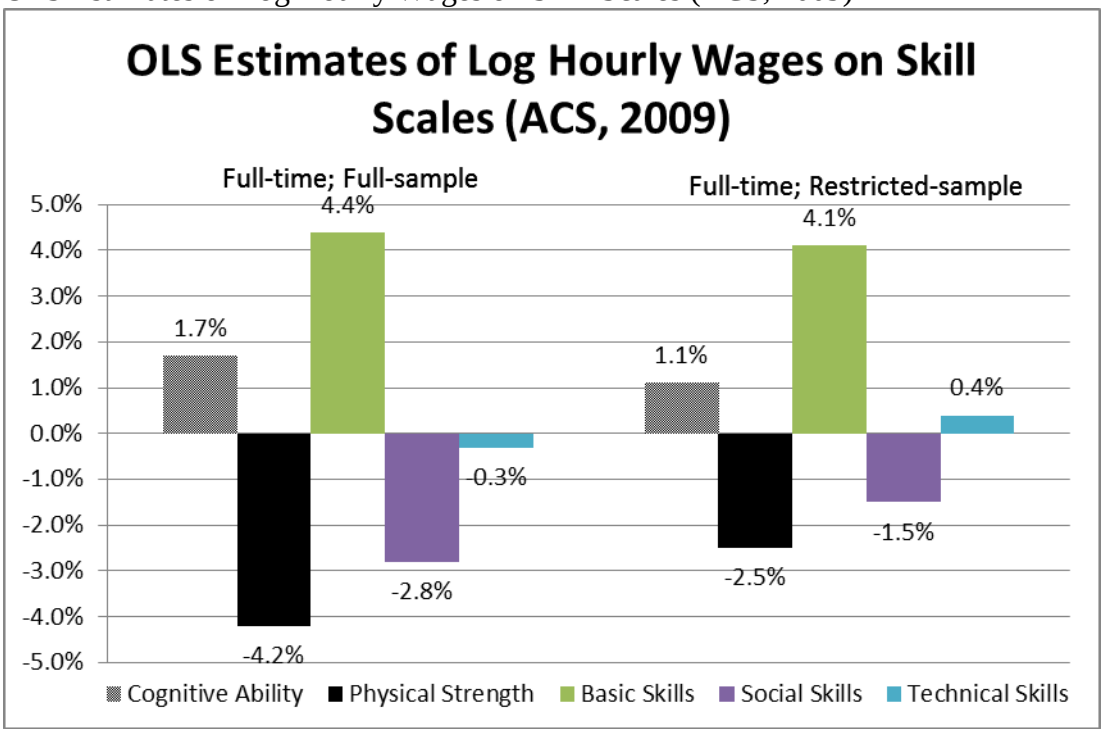


Note: Estimates for full-time male workers in 2009 ACS, controlling for schooling, experience, race, marital status, and 22 occupation groups at 2-digit SOC level.

Next, is an exploration of the role that the occupational requirements of cognitive ability, physical strength, basic skills, social skills, and technical skills have on wages. The economic rate of returns to cognitive ability and basic skills are both positive, whereas the economic rate of return to physical strength and social skills are negative. Among these full-time workers, these same findings occur when total compensation is examined. (See charts below.)

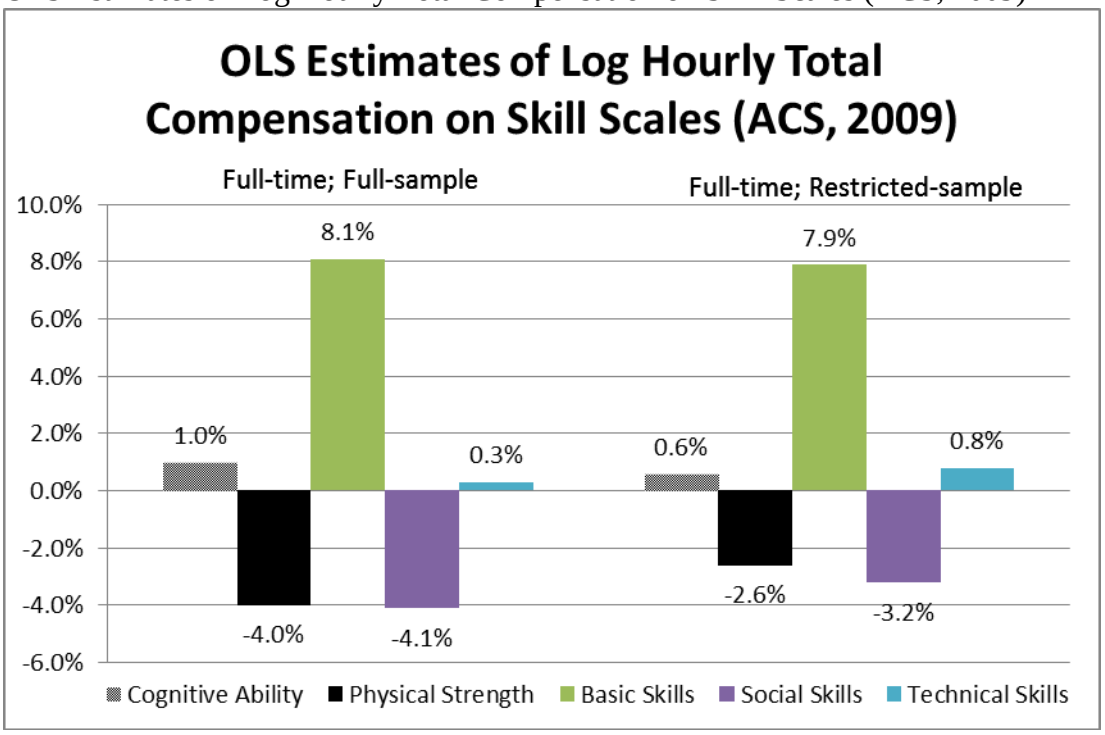
[3] The Ordinary Least Squares regression technique (OLS) assumes a linear relationship between the variable of interest (the dependent or left-hand side variable) and explanatory (independent or right-hand side) variables. OLS produces estimated coefficients on each of the explanatory variables that can be interpreted as how much the (dependent) variable of interest changes when a given explanatory variable changes by one unit. See Greene (2011) for an explanation of this technique.

OLS Estimates of Log Hourly Wages on Skill Scales (ACS, 2009)



Note: Estimates for full-time male workers in 2009 ACS, controlling for schooling, experience, race, marital status, and 22 occupation groups at 2-digit SOC level.

OLS Estimates of Log Hourly Total Compensation on Skill Scales (ACS, 2009)



Note: Estimates for full-time male workers in 2009 ACS, controlling for schooling, experience, race, marital status, and 22 occupation groups at 2-digit SOC level.

This research separately includes interaction terms to examine the economic returns to skills for people with disabilities. Again, we interact disability status with skill measures (i.e. disability times skills measure as an independent variable). There are many findings. Among them is evidence that the interaction between social skills (e.g. coordination skills, negotiation skills, or instruction skills) and disability status is negative, which means the economic return to social skills in a job is negative and this is made more negative for those with disabilities. For example, on average, the more a job requires social skills (compared to other skills), the lower the pay. Being a worker with disabilities is associated with even lower pay if a job requires more social skills. One possible explanation for this is that colleagues and possibly business patrons may feel uncomfortable interacting with employees with disabilities.

Conclusion

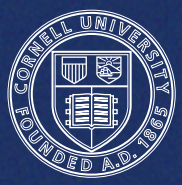
This research provides some insight into why the disability pay gap persists for people with disabilities. It explores the economic returns to different task and skill requirements. Returns to routine tasks and physical strength are both negative, yet, among full-time workers, employees with disabilities work in occupations that have relatively more routine tasks and that require more physical strength. Some evidence suggests that interactions of disability with task and skill measures for the set of occupations indicate that workers with disabilities have less negative returns to routine tasks, as well as to jobs requiring physical strength as compared with those without disabilities.

As informative as these data are, they unfortunately cannot provide an understanding of whether people with disabilities are not adequately trained/prepared for the types of jobs affording higher pay levels, or are channeled (due to discrimination) into particular types of employment opportunities that may result in less ideal employee-employer matches. We are unable to decipher whether the disparity in pay is the result of education differences, job match or placement opportunity differences, actual differences in productivity in specific jobs as a result of disability status, is indicative of workplace discrimination, or some combination of all of the above factors. This study begins to consider an additional explanation for the earning gaps between workers with disabilities and workers without disabilities. The gaps themselves may be due to the productivity differences across jobs. However, selection into different occupations with different economic returns may be due to the barriers that workers with disabilities face in their early training or the job placement process.

Future related research might consider widening the scope of the study to include other subsets of people with disabilities beyond males with full-time employment. Extending this work with a focus on returns to education as well as to include the role of race and gender interacted with disability would further serve to inform this inquiry and related efforts to study employment outcomes for individuals with disabilities.

This brief summarizes the research article "Disabilities, Occupations and Returns to Skills and Tasks" by Kevin F. Hallock and Xin Jin, 2013, Cornell University Working Paper. Hallock, Jin, Melissa Bjelland and Linda Barrington authored this research brief.

This research was conducted with restricted access to data from the Bureau of Labor Statistics. The views expressed here do not necessarily reflect the views of the BLS.



Cornell University

NATIONAL INSTITUTE ON DISABILITY AND REHABILITATION RESEARCH
NIDRR

This state of the science conference and research is funded to Cornell University by the U.S. Department of Education National Institute on Disability and Rehabilitation Research (NIDRR) for a Rehabilitation Research and Training Center (RRTC) on Employer Practices Related to Employment Outcomes among Individuals with Disabilities (grant #H133B100017). The contents of this research brief do not necessarily represent the policy of the Department of Education, and you should not assume endorsement by the Federal Government (Edgar, 75.620 (b)).