Understanding the Motives and Constraints That Lead People to Risky Occupations

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Some occupations take a heavier toll on workers' bodies than others. For example, a production-line worker's back endures considerably more stress than that of an office worker in an ergonomic chair. Such differences in activities at work over a career culminate in striking differences in disability outcomes for older Americans. A group of occupations representing about one-third of the labor force has twice the risk of disability that others have. People in these occupations are demographically different from the rest of the population. They also earn less and save less than other people do. These differences should not be overlooked in discussing the merits of Social Security Disability Insurance (SSDI), a public insurance program that is designed to provide income to those unable to work.

With 8.9 million people receiving SSDI payments[1] in October 2013, there justifiably have been concern and discussion about the program's size, almost 6 percent of the size of the labor force. Many economists have discussed reasons for the program's size and recent expansion[2]—the number receiving benefits grew by more than 50 percent in the past 10 years—but few have studied the connection between the type of work one performs and the risk one faces of a physically limiting disability. This is an important aspect that should probably be part of any discussion about changing the disability insurance program. It's too late for old people on disability to change their career choice, but any reform of the disability policy may affect young people still choosing an occupation. Policymakers also need to be aware of the incentives—intended or not—in the program, both as it stands now and as it might be restructured in the future.

Receipt of disability insurance depends both on health and vocational factors. To measure the connection between occupation and health, we looked at the limitations to Activities of Daily Living (ADL), such as dressing and walking across a room. The data are from the University of Michigan Health and Retirement Study,[3] which surveys about 15,000 people over the age of 50 about their health, income, savings and personal characteristics. Workers' jobs are categorized into 17 occupations, and these survey respondents also report their primary occupation over their lifetime.[4]

Disability across Occupations

Table 1 shows a sample of occupations and their disability risk. To construct these estimates, we grouped workers by their primary lifetime occupation, then computed the fraction who reported some difficulty with one of the ADLs during their working life before 65. Occupations' disability rates were disparate and bimodal; a large group had very low rates, while those in another large group were more than twice as likely to have experienced some disability. The picture looked quite similar when we assigned each occupation a score based on how many and how severe were the disabilities, rather than just tallying any incidence.

What are these "high-risk" occupations, representing about one-third of the labor force? In the top tail, with rates 175 percent or more of the median, were the heavily physical occupations, as expected. The largest group was machine operators. Those who work with industrial machines and those who work with transportation equipment, such as truck drivers, were about equally at risk and comprised 42 percent of the population in high-risk occupations. Workers in construction, extraction and agriculture accounted for an additional 22 percent.

TABLE 1

A Sample of Risky and Safe Occupations

Occupation	Percent with an ADL Limitation
Construction and Extraction	10.9
Machine Operators	10.7
Farming, Forestry, Fishing	10.6
Transport Operators	9.9
Administration	5.9
Sales	5.8
Management	4.3
Professionals	3.6

SOURCES: University of Michigan Health and Retirement Study and authors' calculations.

NOTE: The percentages refer to those with an Activities of Daily Living (ADL) limitation, such as trouble in dressing or walking across the room. The risky occupations have roughly twice the probability of disability before the age of 65.

Workers from these occupations were, understandably, much more likely to apply for and receive SSDI. In our sample, they accounted for about 46 percent of the recipients of SSDI, despite being only about 33 percent of the population. To put this another way, 21 percent of workers in the riskier occupations received benefits from SSDI, whereas only 12 percent from the rest of the occupations did.[5]

Different Demographics

Workers in the riskier occupations also differed in demographic characteristics from those in other occupations. By analyzing these tendencies, we might gain some insights as to why some people choose riskier occupations and some choose safer ones. Table 2 outlines some crucial differences.

For one, those in riskier occupations were less-educated than those in safer occupations. The former were half as likely to have a high school diploma and less than half as likely to have any college experience. Yet, workers in riskier occupations were paid relatively well. Though the average earnings were lower among this group, that was partly an effect of educational differences. When we controlled for their education and other demographics,[6] they made just about the same as their counterparts and, compared with workers with similar education and demographic characteristics, workers in risky occupations made $5,000 more a year.

The relatively high pay in riskier occupations is consistent with the classical theory of "compensating differentials."[7] By this theory, wages should be higher than otherwise expected as compensation for the potential of physical harm. Assuming some additional risk of disability might be one way for less-educated workers to increase their salaries.

Those in riskier occupations also had lower savings than those in safer occupations. This observation holds when we controlled for earnings and demographics via a regression, excluded housing and pension wealth or used the wealth-to-earnings ratio instead of raw wealth. From the perspective of a simple theory of precautionary savings, this was puzzling: If workers in certain occupations faced a much higher risk of disability, with its corresponding loss of income and increased expenses, we would expect them to save a larger fraction of their income. Economists sometimes explain differences in saving behavior by differences in time preferences: If some people put a relatively higher value on their current welfare, they will save less of their income than those with more interest in future rewards. Interestingly, this same difference in preferences might explain why some people take on riskier jobs, in which they trade higher pay today for potentially greater problems later in life. If these differences exist, the compensating differential could actually be lower than otherwise because a person who chooses a risky occupation is less concerned with future injury and, hence, demands less compensation.

Understanding the motives and constraints that push some people into riskier occupations is quite important for the design and assessment of the SSDI program. People's underlying differences may be enough to allow them to efficiently choose their occupations. On the other hand, SSDI transfers money to riskier occupations, and this may alter people's calculus when they decide. To what extent does disability insurance encourage people to work in riskier occupations, and is that desirable? Machine operators incur considerable bodily risk, but the products of their work are vital. Although the rolls of those receiving disability benefits have been rising quickly, we do not have a good benchmark for what should be their optimal size, nor do we know the effects of the availability of disability insurance on individuals in the job market. Ω

TABLE 2

Characteristics of Those Who Work in Risky and Safe Jobs

	Risky	Safe
Male	60%	43%
No High School	47%	23%
Some College	18%	48%
Earnings	$25,000	$32,000
Residual Earnings	$36,516	$38,346
Total Household Wealth	$122,000	$169,000
Liquid Household Wealth	$11,000	$25,000
Ratio of Household Wealth to Earnings	1.23	1.40
Ratio of Household Wealth to Residual Earnings	0.84	1.44

SOURCES: University of Michigan Health and Retirement Study and authors' calculations.

NOTE: To obtain residual earnings, we used a regression to adjust earnings for educational and demographic differences between safer and riskier occupations. Total household wealth is the total value of all assets owned by the household. Liquid household wealth excludes illiquid assets such as housing and pensions but includes liquid assets such as cash, savings and stocks. The ratio of household wealth to earnings is the ratio of household assets to raw income. Household wealth to residual earnings is the ratio of household assets to adjusted income. A higher ratio indicates that a larger fraction of income is saved. Wealth and earnings variables are medians.

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ENDNOTES

1 Data on coverage come from the Social Security Administration. See www.ssa.gov/OACT/STATS/dibStat.html.
2 See, for example, Autor and Duggan; Golosov and Tsyvinski.
3 We used the extract with contributions from the RAND Center for the Study of Aging, available at http://hrsonline.isr.umich.edu/modules/meta/rand/index.html.
4 Respondents are asked about their longest-held occupation over their lifetime.
5 These rates of receiving SSDI in our sample are a bit high. Autor and Duggan, using administrative Social Security data, calculate that 10.9 percent of men and 8.3 percent of women between the ages of 55 and 64 are enrolled in SSDI. However, rather than a single-year cross section, we looked at whether an individual ever receives benefits after the age of 50, which should increase the figure somewhat.
6 To control for this variation, we took residuals from a regression on education level, a quadratic in work life, gender and self-employment. We regressed separately for respondents and their spouses for each wave of data.
7 See Rosen.

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