

11-1-2022

## Employment Research, Vol. 29, No. 4, October 2022

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### Citation

W.E. Upjohn Institute. 2022. Employment Research. 29(4). [https://doi.org/10.17848/1075-8445.29\(4\)](https://doi.org/10.17848/1075-8445.29(4))

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## EMPLOYMENT RESEARCH

## ARTICLE HIGHLIGHTS

■ To boost college graduation rates, policymakers often advocate programs such as coaching or mentoring, but many of these programs are costly and difficult to scale.

■ We evaluate a relatively low-cost (and potentially scalable) group coaching program targeted at first-year college students who are placed on academic probation.

■ The program is mandatory, and participants attend a workshop in which coaches aim to normalize failure and improve self-confidence.

■ We show that the program raises students' first-year GPAs and decreases the probability of their dropping out in the first year of college.

■ The coaching/mentoring may have substantial long-run effects: we document significant gains in lower-income students' earnings 7–9 years following entry to the university.

## ALSO IN THIS ISSUE

### Disability Insurance Screening and Workers' Health and Labor Market Outcomes

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# College Academic Coaching Can Increase College Success and Later Earnings

*Pierre Mouganie, Serena Cnaan, Stefanie Fischer, and Geoffrey C. Schnorr*

The college wage premium—the additional earnings of college graduates over high school graduates—has increased in recent decades. Although college graduation rates have also been increasing recently, the disparity in graduation rates between lower- and higher-income students has been growing. This puts low-income students at a disadvantage in the labor market. Policymakers and researchers have recognized this issue, and an often-proposed solution is to enhance academic support services in both high schools and colleges in order to improve college graduation rates, particularly for groups that have traditionally struggled.

Academic support services such as coaching and mentoring programs have shown the most promise, but only when they are implemented in a very proactive manner—when they provide students with personalized follow-up and attention. Unfortunately, these programs are often expensive, making them hard to implement or scale at a regional or national level. We analyze a relatively low-cost but targeted-group coaching program that has the potential to scale. This program was rolled out at a large public university in California starting in the year 2009. The program targeted first-year students most at risk of dropping out—those placed on academic probation during their first semester at university.

We find that the coaching program significantly increased students' first year grade-point average by 16 percent of a standard deviation (about 0.1 GPA points on a 4.0-point scale) and lowered first-year dropout rates by 8.6 percentage points, from approximately 26 to 18 percent. We also find that these changes correspond to a higher likelihood of graduating from university. These effects seem to be concentrated among men, STEM majors,

and lower-income student groups. This pattern is not surprising, as lower-income students and men persist in and complete college at much lower

**An academic-support coaching program at a large California university significantly increased at-risk students' first-year GPAs while lowering dropout rates from 26 percent to 18 percent.**

rates than higher-income students and women. Additionally, college attrition rates for STEM majors tend to be high.

In a [recent paper](#), we also provide some of the first causal evidence that coaching and/or mentoring programs can lead to significant gains in the labor market. While we find that coaching had no overall effect on employment and wages, we do document substantial wage gains for men and lower-income students. Our findings are timely and relevant, as policymakers and researchers aim to address the college “completion crisis” in the United States.

### Measuring the Impact of the Targeted Academic Coaching Program

Using rich administrative data for all first-year students entering a large public university in the state of California, our approach centers on understanding the effects of targeted coaching programs for academically vulnerable students. Specifically, we use student-level data for 11 cohorts of students entering the university

## College Academic Coaching Can Increase College Success and Later Earnings

between 2007 and 2017. By linking these data to administrative files from the state of California's Employment Development Department, we are able to also investigate the program's effect on students' eventual labor market outcomes.

### The college benefits of the program were concentrated among groups typically with lower college graduation rates: lower-income students, men, and STEM majors.

Our data and setting are ideal for our analysis for three reasons. First, the way the coaching program was rolled out at the university we examine provides an ideal way to establish a causal link between the program and students' outcomes. We touch on this point in more detail below. Second, the structure of the program is interesting in that it has many of the key components of previously successful programs but without the added costs. Indeed, the program rollout was targeted at academically vulnerable students, involved personal supervision, required follow-up visits, and was mandatory. We estimate that the program cost of inducing an additional student to remain at university is \$1,667. Third, our data are both detailed and extensive, spanning many years of individuals' lives. This enables us to offer a broad look at potential outcomes through various stages of life (early university, graduation, labor market outcomes) to try to understand why the program was successful.

A complicating factor in estimating the causal effects of any mentoring program is that students generally self-select into these programs. In particular, students from higher-income households or those with more parental involvement may be more likely to take up these opportunities.

As a result, simply comparing students who are mentored to those who are not conflates the causal effect of mentoring with the type of student who selects into mentoring. In order to estimate the causal impact of the program, we take advantage of the first-year GPA eligibility criterion. Specifically, students scoring below a 2.0 GPA in their first semester were required to participate in the coaching program, and those scoring above it were not. By comparing students who were just below and just above the threshold, we are able to estimate the causal impact of the program, as students around this threshold tend to have, on average, similar characteristics and are academically comparable.

A final complicating factor is that the coaching eligibility GPA threshold of 2.0 is the same as the probation threshold at the university. In other words, students scoring below a 2.0 GPA in their first semester are required to attend the coaching program but are also placed on academic probation. Luckily, we have data for three years prior to the rollout of the program. In these years, students below the program threshold were put on probation but were not required to attend a coaching program. Intuitively, our research involves estimating the effects of scoring below versus above the 2.0 GPA cutoff for cohorts exposed to both coaching and probation, relative to the effect of scoring below versus above the 2.0 GPA cutoff for cohorts exposed to only probation.

The results are striking. We find that the coaching program increased students' GPAs by approximately 0.1 points and led to large reductions in first-year college dropouts on the order of 8.6 percentage points, a 33 percent decrease. We also provide evidence that the program increased six-year graduation rates among program participants by around 4 to 7 percentage points. Importantly, we are also able to check whether these impacts endure past graduation by

examining labor market outcomes. Overall, we find no significant effects of the coaching program on the average student's earnings and employment at ages 24 to 26.

Our analysis reveals some interesting patterns that are further relevant for policymakers. The majority of the effects we estimate, for example, are driven by lower-income students, men, and students in STEM majors. Figure 1 summarizes effect sizes for these groups for three main outcomes of interest: GPA, first-year college dropout rates, and quarterly earnings. Even though we found no overall impact on earnings for the average student in the coaching program, we do find large and significant effects on earnings for these three groups of students. In particular, low-income students had approximately 30 percent higher earnings at ages 24 to 26 as a result of program participation.

### Why Did Students Benefit So Much from Academic Coaching?

The detail of our data allows us to speculate on why the coaching program was so successful. While the program was designed as a coaching intervention, it includes a bundle of treatments (i.e., emotional support, information, goal-setting, and time management skills) which all have the potential to individually boost students' academic success. Further analysis from student surveys conducted at the university shows that students who participated in the program felt significantly more supported by a faculty or staff member, were less likely to feel that they were the only ones struggling, were more familiar with the university's student services, and were better at managing their time. Given these findings, we believe that the coaching program was successful because it increased participants' social-emotional state. Most importantly, it seems to have increased students' perceptions regarding the

level of support they felt from the university.

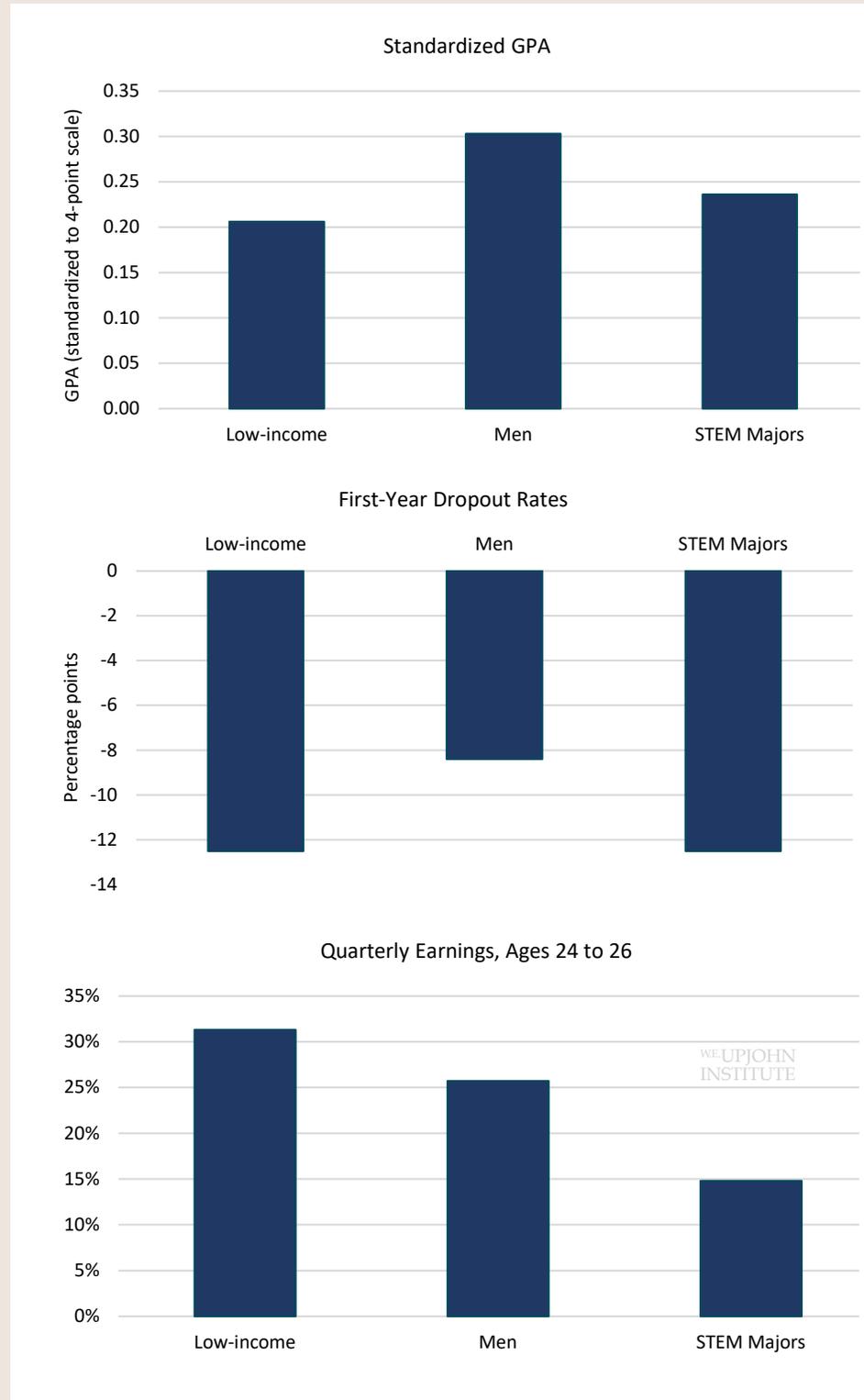
**Conclusion (Scalability of Coaching Program)**

A final consideration is the nature of the program we analyze. Traditionally, mentoring or coaching programs have been expensive, making them extremely difficult to roll out or scale up. A particularly attractive and important feature of our program is that it has a much lower cost structure than previously successful interventions. We estimate that the program cost of inducing an additional student to remain at university is \$1,667. This compares favorably to other successful college coaching programs, which can cost anywhere from \$4,000 to \$19,000 per student induced to stay at university. From a policy perspective, our program’s lower cost and less complex structure make it potentially easy to implement and scale at a larger level. While the degree to which our findings can be replicated at other universities remains an open question, the results from this coaching program are quite promising. We conclude that even less-proactive coaching programs can prove successful as long as they are personalized, mandatory, and include follow-up visits.

For additional details, see the full working paper at [https://research.upjohn.org/up\\_workingpapers/370/](https://research.upjohn.org/up_workingpapers/370/).

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**Figure 1 Effects of the Coaching Program on Low-Income Students, Males, and STEM Majors**



NOTE: The figure shows estimated effects of participation in the coaching program on the indicated outcome for each of three groups: low-income students, male students, and students majoring in STEM fields. For methodological details and full definitions of the outcomes and groups, please see the [full paper](#).

SOURCE: Authors’ calculations from administrative data from the state of California.

# Disability Insurance Screening and Workers' Health and Labor Market Outcomes

Alexander Ahammer and Analisa Packham

Disability insurance (DI) is a public expenditure (or social insurance) program designed to provide income to individuals who become incapable of working due to health conditions, often a workplace injury. Depending on the income replacement rate, DI can provide incentives against work and can effectively serve as a form of early retirement. Moreover, DI costs and caseloads have been increasing in recent years, leading governments to consider alternative payment schemes and/or additional restrictions.

Although more effective gatekeeping can lower DI rolls and reduce financial burdens, the costs to workers themselves may be large. For example, stricter DI screening rules would be harmful to workers if rejected applicants are forced to return to work but experience lifelong mental or physical health problems as a result. On the other hand, if more stringent criteria for claiming DI induces workers “on the margin” to continue working without suffering any negative health consequences, applicants who

are screened out of eligibility would continue to earn income.

To study these trade-offs of stricter DI screening directly, we use newly linked administrative data in Austria to evaluate whether changing age-based DI screening requirements for older workers affects their labor market outcomes, health, and well-being. While it is well documented that DI can affect employment, we know relatively little about how DI regulation affects health in the short or long run.

We provide three new findings: First, we show that looser screening regulations subsidize retirement by inducing injured workers to claim DI and permanently leave the labor force. Next, we show that individuals denied DI do not change their take-up of other types of safety net program participation, such as unemployment insurance and sick leave. Lastly, and most importantly, we show that being denied DI does not lead to measurable changes in mental or physical health. Specifically, screened-out workers are no more likely to use opioids or

antidepressant prescriptions, and they do not experience additional hospital stays or physician fees. These workers are also no more likely to experience a workplace reinjury. Governments looking to reduce DI financial burdens can thus consider tightening the screening for eligibility to curb costs without imposing significant physical or mental harm to marginal applicants.

## Effects of Increased DI Screening on Labor Market Outcomes

Our goal is to measure how more-targeted DI programs affect worker employment and health outcomes. However, because DI is a program that individuals can opt into and is based on health assessments from a doctor, workers claiming DI and those unable to claim DI are likely different on many dimensions, like age or health status. Therefore, to get a sense of the causal effects of changes in DI screening, we use a natural experiment that allows us to define treatment and control cohorts to test the differences of increased DI screening.

To compare otherwise similar workers who face different levels of DI screening, we exploit changes in the Austrian Generous Screening Age (GSA) over time. For younger workers below the GSA, screening for DI is relatively strict, requiring a 50 percent reduced earnings capacity relative to any occupation the individual could pursue. At the GSA, the screening criteria are more relaxed, requiring a 50 percent reduced earnings capacity relative to the individual's last occupation. Until the end of 2012, the GSA was 57. However, in 2013, as part of the Stability Act, or *Stabilitätsgesetz*, Austria reformed these age-based screening requirements, slowly increasing the GSA from 57 to 60 over three years, making it more difficult for older workers to access DI benefits.

We focus on the subset of applicants at most immediate need of DI: acutely injured workers. We analyze effects

## ARTICLE HIGHLIGHTS

- *As DI caseloads rise, one relevant policy question is whether more targeted screening can reduce costs without imposing substantial health consequences.*
- *We find that looser DI screening regulations lead acutely injured workers aged 55–62 to claim DI and permanently leave the labor force.*
- *In contrast, implementing more stringent DI application criteria does not significantly increase mental or physical health costs for screened out workers.*
- *More targeted DI programs can have large fiscal savings without harming workers.*

of the change in DI screening for male workers aged 55–62, comparing same-age workers who experienced a workplace accident between 2000 and 2017. Workplace accidents represent an unexpected acute health care shock to workers and result in DI claims approximately 20 percent of the time.

We separate workers into two groups: those subject to a “tight” (more restrictive) screening requirement after injury and those subject to relaxed screening, according to the GSA rule and the worker’s age at the time of the accident. We find that after a worker experiences an accident, DI claims increase in both groups. However, the increase in DI claims is markedly smaller for workers who qualify for stricter screening. In particular, we find that stricter DI application screening leads to a 7.8 percentage point decrease in DI take-up, on average. We show that this decrease is not due to workers waiting until they are older to claim DI or experiencing more accidents once they are past the GSA cutoff.

In Figure 1 we perform the same exercise for the probability of being employed. Prior to a workplace accident, the trends in employment for the workers subject to tight versus generous DI screening overlap. After the accident, workers in both groups are more likely to leave the labor market. However, the outflow is much weaker among those who are subject to stricter DI screening.

When we formally estimate the causal impact of tighter screening laws by comparing workers based on their screening level prior to and after the workplace accident, we find that stronger DI screening increases employment by 20.0 percentage points in the 12 quarters after a workplace accident—this corresponds in our sample to an additional 470 workers staying in the labor market who otherwise would have retired within three years. Notably, this is almost identical to the magnitude for the take-up in DI. This reduction in DI

participation does not simply spill over to other government programs; we find that workers subject to stricter DI screening are no more likely to claim unemployment insurance in the first two years after injury.

Additionally, we show that prior to a work accident, workers facing both tight and relaxed screening criteria have similar levels of daily wages (approximately 90 euros per day). However, our estimates indicate that workers facing stricter DI screening are not only more likely to reenter the workforce, but they also experience higher earnings trajectories and earn approximately 2,075 more euros per year, on average.

**Effects of Increased DI Screening on Worker Health Outcomes**

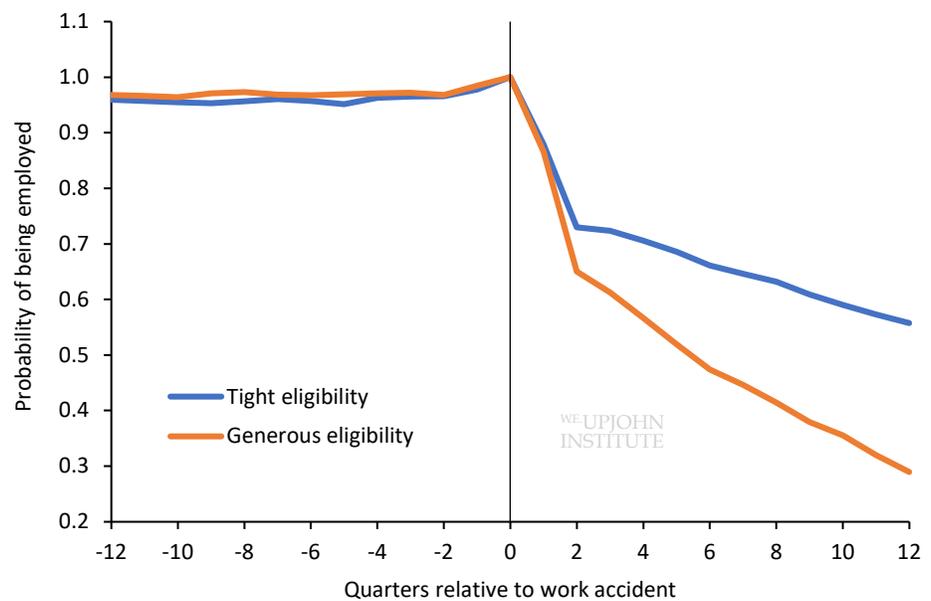
Next, we analyze the broader effects of increasing DI screening. Specifically,

we test whether screening out more workers affects short- or long-run physical and mental health outcomes. We find that the number of days spent

**We find that stronger DI screening increases employment by 20.0 percentage points in the 12 quarters after a workplace accident—this corresponds in our sample to an additional 470 workers staying in the labor market who would have otherwise retired within three years.**

in the hospital for workers facing tight screening and those facing generous screening almost perfectly overlap, both prior to and after a workplace accident. In the quarter of the accident, hospital days spike, suggesting that

**Figure 1 Effects of Increased DI Screening on the Probability of Being Employed**



NOTE: The sample includes all male workers that have a work accident aged 55–62 between 2000 and 2017, N = 6,394. The figure plots raw probabilities for each quarter relative to the work accident.

SOURCE: Individual-level data on workplace accidents is from the Austrian General Accident Insurance Fund. Data on DI enrollment and labor market participation and wages for Austrian workers is from the Austrian Social Security Database files.

**Disability Insurance Screening and Workers' Health and Labor Market Outcomes**

the accident leads to around a week-long hospital stay on average for both groups. After the accident, the trends converge again. (Formally, we find that

the two groups before and after a workplace accident and mirrors the trends for other health outcomes that we observe. We find no differential effects on physician fees or reinjury, implying that workers screened out of DI are no more likely to experience further negative physical health consequences when returning to work.

To test for effects on mental health, such as stress or depression, we analyze changes in prescription take-up for antidepressants and antedementia drugs. We find no statistically significant effects for either measure. These findings further reinforce the notion that, for marginal applicants, DI subsidizes retirement but yields little to no health benefits.

**Measuring Welfare Effects**

Taking the above findings into consideration, we ask whether the social benefits of the changes in DI

screening outweigh the costs. Consider what would happen if the stricter screening were not implemented, and more workers instead were able to claim DI. Using our estimates, we calculate the benefits of being subject to a less-strict eligibility criteria, including any gained income and health effects for the marginal workers. We then consider the direct government costs of looser DI screening, including forgone tax revenue.

We find that only 20 percent of male workers aged 55–62 injured on the job claim DI within three years of injury, corresponding to approximately 4,700 workers. To estimate direct impacts to worker well-being, we consider how DI take-up changes income. Because DI has, on average, a 70 percent replacement rate aggregating foregone income across these 4,700 workers implies that, in total, workers are willing to trade approximately nearly 1 million euros per year for reduced DI screening. Because the change in screening does not affect health outcomes or unemployment insurance receipt, workers do not directly benefit on these dimensions.

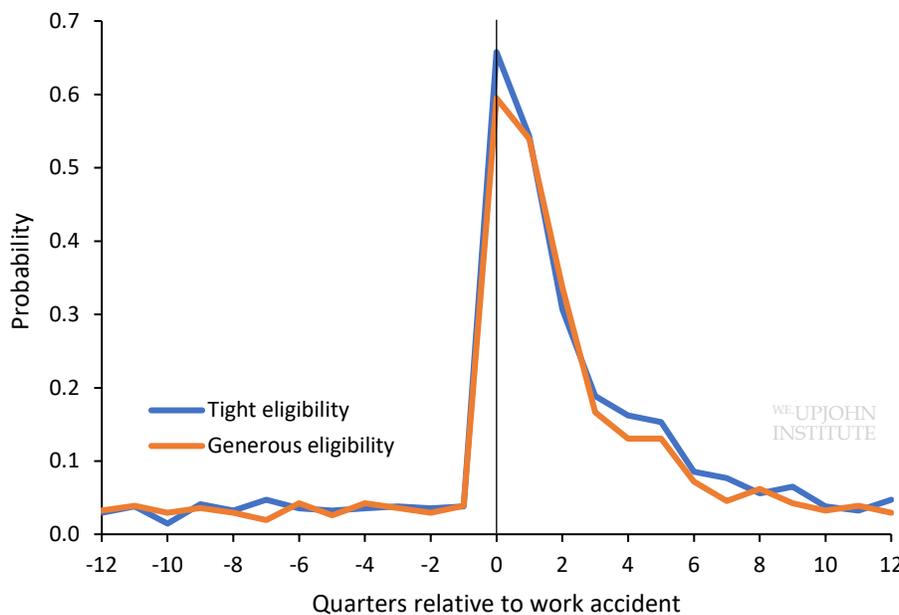
Next, we calculate the net DI cost per recipient for workers near the margin. Workers eligible for DI remain on the program as a form of retirement. We estimate that workers claiming DI after an on-the-job injury receive an average payment of nearly 17,000 euros annually. Therefore, the mechanical reduction in costs for increasing DI screening equals about 2.6 million euros per year (17,000 euros × 470 cases / three years). Furthermore, when workers receive DI and leave their job, the government loses tax revenue. Assuming the lowest marginal tax rate bracket in Austria of 20 percent, and the average wage in our sample of about 24,000 euros, we should expect that the government will give up an average of 750,000 euros each year in tax revenue from more generous DI screening.

**We find no differential effects on physician fees or reinjury, implying that screened out workers are no more likely to experience further negative health consequences when returning to work.**

tighter DI screening leads to a small, economically insignificant 0.2 day increase in average hospital stays.)

Furthermore, to examine whether increased screening forces workers to return to work without a full recovery, we analyze two other measures of health care utilization: fees paid to physicians and reinjury. Figure 2 presents the trends in injury for

**Figure 2 Effects of Increased DI Screening on the Probability of Reinjury**



NOTE: The sample includes all Upper Austrian male workers who have a work accident aged 55–62 between 2000 and 2017 (N = 645). The figure plots raw probabilities for each quarter relative to the work accident.

SOURCE: Individual-level data on workplace accidents is from the Austrian General Accident Insurance Fund. Data on DI enrollment and labor market participation and wages for Austrian workers is from the Austrian Social Security Database files.

## Conclusion

We find that, in Austria, tightening the screening standards for DI provides fiscal benefits with minimal health and labor market consequences for the marginal worker. If such a policy were to be targeted to younger and/or healthier workers who would be expected to continue to work for many more years, welfare gains would be even larger. We note that the implicit price of providing DI benefits to applicants, in terms of impacts on the labor market, has been shown to be larger in Austria than in the United States. This is mostly due to the fact that DI in the United States is often seen as a program that can serve as a substitute to unemployment insurance or other non-health shocks. Therefore, our findings may be most relevant for countries with relatively large social safety nets. Nonetheless, the conclusions from our analysis are generally relevant for governments (like the United States) that still rely on age-based DI policies. Overall, these findings are especially relevant for governments looking to reduce the rising fiscal costs of disability payments without inducing lifelong health consequences for workers.

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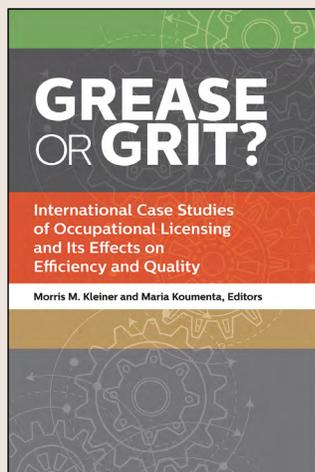
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### Vol. 29, No. 4

**Employment Research** is published quarterly by the W.E. Upjohn Institute for Employment Research. Issues appear in January, April, July, and October.

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