Understanding the Impact of Cash on Hand on the Labor Supply of Disabled Workers

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Abstract

There is growing evidence that individuals with disabilities experience reduced consumption and well-being after disability onset. If workers with disabilities are cash constrained soon after the onset of a health condition, the need for cash (and thus the value of benefits) may be particularly high at the beginning of benefit receipt. If this is the case, then a larger or lump sum payment could be more effective at improving beneficiary outcomes soon after the onset of an impairment than smaller monthly payments. While Social Security Disability Insurance (SSDI) has some lump-sum payment features such as back pay and reimbursements for overpayments, there is currently little research exploring how the structure and timing of disability payments affects future labor supply. In this project, we examine the sensitivity of workers with disability to the available amount of cash on hand. Using a regression discontinuity (RD) design, we take advantage of a change in the default payment method of permanent partial disability PPD awards workers' compensation benefits in Oregon to explore this question. Workers whose total PPD award is less than $6,000 receive the full amount of their benefit as a lump sum, while those whose awards exceed $6,000 default to be paid in monthly installments. Since the award value cannot easily be manipulated, this abrupt change in the default payment method creates exogenous variation in the amount of cash on hand that a worker will have at the time that their claim ends. We perform several tests which validate the use of the RD design, including testing for bunching in the frequency of claims and testing for discontinuous breaks in the trends observable characteristics. However, we do not find statistically significant evidence that the default assignment to receive payment as a lump sum affects subsequent labor supply. Because our findings are local to the $6,000 threshold, it is possible that providing larger benefits in a lump sum could have a greater impact on workers' labor supply decisions. However, our results do not generalize to benefits far beyond the binding threshold of $6,000. Future work should explore whether larger differences in the level and duration of monthly vs. lump sum payments have meaningful effects on outcomes of workers with disabilities.

1. Introduction

Individuals with disabilities who are cash constrained may be forced to work even if it is extremely difficult or painful for them to do so. One way disability benefits may make disabled workers better off is by reducing this cash constraint, thus alleviating the need to work. Furthermore, if workers with disability are cash constrained soon after the onset of a health condition due to high medical bills and low income while applying for benefits, the need for cash (and thus the value of benefits) may be particularly high at the beginning of benefit receipt. If this is the case, then a larger or lump sum payment could be more effective at improving beneficiary outcomes soon after the onset of an impairment than smaller monthly payments.

Despite the fact that the structure and timing of benefit payments may affect individuals' decisions about whether or when to re-engage in the labor force, there is currently little research exploring these features of benefit design. Growing evidence indicates that individuals with disabilities often experience reduced consumption and well-being after disability onset (Bronchetti 2012, Galizzi and Zagorsky 2009, Rennane 2018), suggesting the *timing* and *size* of disability payments could prove to be as important as the *value* of the award. In this project, we examine the sensitivity of workers with disability to the available amount of cash on hand after months or even years when they likely do not have a steady income, and experience significant medical bills. A better understanding of the extent to which individuals with disability are cash constrained and how these constraints affect their labor supply will provide new information about how the structure of payments may affect beneficiaries' labor supply.

These findings could have important policy implications for programs like Social Security Disability Insurance (SSDI), which, in addition to providing recurring monthly benefits, also provides lump sum (or lump sum-like) payments to some beneficiaries. New beneficiaries are

often eligible for backpay, typically provided in a lump sum, which compensates beneficiaries for a retroactive period going back to the date of entitlement (five months after disability onset) if the disability determination was made after the entitlement date. In some cases, working beneficiaries occasionally receive unexpected overpayments and are subsequently required to return the funds to SSA, creating the *reverse* of a lump sum payment. There is little (if any) research studying to what extent lump sum payments like these affect disability beneficiaries' return to work decisions.

One way to measure workers' sensitivity to cash on hand is to compare the labor supply of a group receiving an up-front lump sum payment with that of an observationally identical group receiving a smaller re-occurring payment with the same total value. If workers behave differently depending on whether the type of payment scheme they are on, this suggests that their labor supply decisions are sensitive to the amount of cash they receive up front. Unfortunately, exogenous variation in the structure of payments does not exist in many national programs like the current SSDI system. In this paper, we exploit policy variation in the structure of workers' compensation payments of permanent partial disability (PPD) awards to better understand how cash constraints may affect the behavior of workers with disabilities. Prior work has found that these beneficiaries overlap significantly with the SSDI beneficiary population (Reville and Schoeni 2003, Weiss et al. 2019). Using a regression discontinuity design, we take advantage of a discontinuity in the PPD payment schedule that changes the default payment structure for permanent disability benefits from a lump sum payment to a monthly installment. We analyze the impact of this change on workers' labor market outcomes including whether or not a worker returns to work, subsequent earnings and hours worked.

Despite this change in the default payment, we do not find statistically significant evidence that the shift to monthly installments has a statistically significant effect on labor supply decisions.

There are several possible reasons for this, including the fact that our findings are local to the $6,000 threshold, which may be too low to meaningfully impact labor supply. While it is possible that providing larger benefits in a lump sum could have a greater impact on workers' labor supply decisions, our results do not generalize to benefits far beyond the binding threshold in this case of $6,000.

2. Institutional Background

Our study focuses on the design of PPD payments in Oregon's workers' compensation system. In Oregon, PPD benefits are determined using a complex formula based on disability impairment ratings, body part(s) of injury, a workers' pre-injury wage, state average wages, and considerations of whether a worker is able to return to his or her pre-injury employment.[1] If awarded, PPD benefits are provided to the worker at the time of claim closure regardless of the workers' subsequent work activity. In other words, any labor supply response would be interpreted as a response to a change in income rather than any change in the incentives to return to work. Unconditional cash payments have been used to identify sensitivity to cash on hand in other settings like unemployment insurance (Chetty 2008).

In Oregon, PPD awards totaling less than $6,000 are provided in a lump sum at claim closure. By default, awards larger than $6,000 are provided in monthly installments, although workers with larger awards may opt to receive their PPD benefit as a lump sum instead (ORS 656-230). The $6,000 threshold has been set in nominal terms since at least the 1990s. Awards greater than $6,000 are paid in monthly installments valued at 4.35 times the individual's weekly temporary disability benefit rate, equal to two-thirds of the worker's pre-injury wage, subject to a

[1] See Mullen and Rennane (2020) for more details on the PPD program and benefit formula.

minimum and maximum (ORS 656-216). The most important inputs to determine benefits, impairment and work disability ratings, are determined by physicians independently of the other components in the benefit formulas. This means that the exact value of the PPD award – and specifically whether or not it exceeds $6,000 – is not easily manipulated by claimants or raters. As a result, this threshold creates exogenous variation in the amount of available cash on hand a worker receives at the time of claim closure, holding constant the total value of the PPD award.

Because the temporary disability benefit is a function of the wage, the size and duration of monthly payments for awards above $6,000 varies with a worker's wage: claimants with lower wages receive smaller monthly payments spread over a longer duration of time, while claimants with higher wages receive larger monthly payments paid for fewer months. For example, the monthly benefit rate for a worker with the median weekly wage in the sample ($571 in nominal dollars) would be approximately $1,650. This means that a worker with a $6,000 award would receive their full benefit paid over a total of 4 months, rather than in a lump sum at closure. However, a worker with a wage in the 25th percentile ($400 per week in nominal terms) would receive a $6,000 award paid over 5 months (with monthly benefits of $1,160), and a worker with a wage in the 75th percentile ($800 per week in nominal terms) would receive a $6,000 benefit paid over 3 months (with monthly benefits of $2,230).

3. Data

To explore how cash constraints may affect the behavior of workers with disabilities, we utilize several administrative datasets from the Oregon Department of Business and Consumer Services (DBCS) Workers' Compensation Division and the Oregon Employment Department (OED). DCBS provided claim-level data for all closed claims with indemnity benefits between

1987-2012. The database includes information about total indemnity and medical payments made on the claim; total temporary disability (TTD) days paid; and key dates including date of injury, first and last dates of TTD paid, and closure date. Worker characteristics include date of birth, gender, pre-injury weekly wage, industry and occupation. DCBS also provided information on total PPD awards, injured body parts, award type (e.g., scheduled, unscheduled, impairment and/or work disability). Additional information about return to work at the time of claim closure is provided for claims between 2001 and 2012.

The dataset also includes impairment ratings required to calculate the benefit at the time of the PPD award (e.g., both percent and degree of body or whole person, depending on the date of injury). The data on impairment ratings for PPD awards is available for injury years between 1999-2012. DCBS worked with OED to match these PPD awards to the quarterly wage records in the state Unemployment Insurance (UI) database between the third quarter of 1999 and the fourth quarter of 2012. DCBS and OED conducted the match between datasets using worker Social Security Numbers, and excluded outlier records in the wage database and other observations with inconsistent and incomplete data. On average, OED and DCBS achieved a 97 percent match rate between the UI database and PPD claims records, and then provided quarterly wage data including total earnings, hours and a dummy employer ID for the cases that matched the claims database.

Together, these data sources give us a detailed account of claimant demographic and injury characteristics, PPD awards, ratings and formula inputs. Additionally, we have complete employment information before and after injury for completed PPD claims in Oregon between

2001 and 2012. We restrict our analysis sample to injuries occurring between 2001 and 2009.[2] Because PPD claims can take years to develop and close, we apply a constant maturity screen to all injury years in our analysis and include claims that were closed within three years of the date of injury. This screen addresses concerns that slow-developing claims in later injury years might not have closed at the time of the match to the wage records and would be disproportionately excluded from the dataset. In practice, this restriction excludes approximately 5 percent of claims (primarily from earlier years) in the analysis. After these main restrictions, our total sample size is approximately 38,000. In our analysis sample, approximately 57 percent of PPD claims have benefit awards less than $6,000 in nominal terms. Coincidentally, the median benefit in $2009 is $5,500, and the mean is approximately $10,000.

4. Empirical strategy

4.1 Regression Discontinuity Approach

In a regression discontinuity (RD) approach, treatment and control groups are assigned based on whether the value of a "running variable" exceeds a particular threshold (Lee and Lemieux 2010). In this our case, the running variable is the value of the PPD award, the threshold is $6,000, and awards above $6,000 can be viewed as being "treated" with receiving payment in monthly installments instead of as a lump sum. In order to implement our regression discontinuity approach, we estimate regressions as follows:

$$Y_i = \delta D_i + \gamma PPD_i + X_i\beta + \varepsilon_i \quad (1)$$

[2] A 2005 reform changed the way PPD benefits were calculated but not the $6000 threshold for lump sum payments. The reform was intended to be budget neutral and did not measurably affect average benefits but largely redistributed them. See Mullen and Rennane (2020) for more details on the 2005 reform.

where Y_i represents a post-injury labor market outcome of interest (including an indicator for whether a worker returns to work, and earnings and hours in the first quarter after return) and D_i indicates whether the claimant's total PPD award is above the $6,000 threshold for a lump sum payment. We additionally control for the value of the PPD award, in PPD_i. We include a series of covariates in X_i including formula inputs that determine the total value of the claimant's PPD award (rated percent of impairment and the claimant's pre-injury weekly wage), as well other worker demographic and injury characteristics. If the parameter δ is significantly different from zero and positive, this implies that claimants *increase* their labor force behavior when they receive a smaller payment in installments, suggesting that the worker may be cash constrained and a larger up-front benefit could alleviate this constraint.

Because workers may opt to receive payments above $6,000 as a lump sum instead of the default monthly installments, the discontinuity is not necessarily binding but instead discontinuously increases the probability that a worker receives monthly payments instead of a lump sum. Figure 1 shows estimates of the share of workers who receive their PPD payment as a lump sum for claims above and below $6,000. As a result of the law, 100 percent of claims with total PPD awards below $6,000 are paid as a lump sum. Based on estimates from a large insurer in Oregon, between 15 and 20 percent of claims with total PPD awards above $6,000 request to receive the payment as a lump sum. In other words, the change in the default from a lump sum to a monthly payment represents a meaningful change for the majority of beneficiaries just on the other side of the threshold: approximately 80 percent of these claims instead receive their payment in monthly installments. Because the option for a claimant to request a lump sum exists and a small share of claimants do take up this option, our RD approach is an intent to treat (ITT) analysis based

on assignment to the *default* payment mechanism of a lump sum (below $6,000) or monthly installments (at/above $6,000).

We use this exogenous variation in payment structure to analyze the impact of the amount of cash on hand on several measures of labor supply. First, using information from earnings records, we can observe whether the individual returns to work, quarterly earnings and hours worked in the first quarter after injury. Because most beneficiaries with total awards just above $6,000 will receive their full award paid over 3-4 months, any differential effect of monthly vs. lump sum payments on labor supply is likely to be highest immediately or within the first quarter of claim closure.

The main identification assumption in implementing this RD approach is that the frequency of PPD awards and claimants' characteristics trend smoothly through the $6,000 threshold, meaning that within a sufficiently small range of benefit amounts (or bandwidth) around the threshold, claimant characteristics are similar and the exact payment amount determining the default payment structure can be considered as good as random. There are two main steps to testing this assumption. First, what is an appropriate bandwidth that would classify a benefit amount as being "near" the threshold? And second, to what extent is the assumption that the exact value of the benefit is randomly assigned within this bandwidth a plausible assumption? In the sections that follow, we describe our approach to examine each of these questions.

4.2 Power Calculations and Bandwidth

In general, RD approaches yield valid estimates of causal effects that only apply to individuals within a small range of values of the running variable around the threshold. For example, in our case, PPD benefits are increasing with the severity of the injury, meaning that a worker with a

$10,000 benefit (and thus, a more severe injury) will likely have different characteristics and return to work options than a worker with a $1,000 benefit (and less severe injury). In contrast, two workers with a $5,500 benefit and a $6,500 benefit respectively are likely to be similar in terms of many characteristics including their injury severity. However, the choice of what constitutes a small "range" is important. On the one hand, too small of a bandwidth will limit the number of observations and may limit the power of the analysis. On the other hand, a large bandwidth makes the assumption of "random assignment" on either side of the threshold less plausible, and also may introduce bias in the resulting estimates due to differences in the sample or resulting from choices of functional form (Lee and Lemieux 2010). An optimal bandwidth aims to balance these two tradeoffs to yield a sample with sufficient precision that limits the extent of potential bias.

We use the data-driven approach to determine the optimal bandwidth process as described in Calonico Cattaneo and Titunik (2014a, 2014b, 2017), hereafter denoted CCT. Table 1 shows the optimal bandwidths for each of our main outcomes observed during the first quarter of claim closure as determined by the CCT method. For each outcome, the optimal bandwidth ranges between $950 and $2,300 on either side of the $6,000 threshold. Of course, the bandwidth restriction limits the number of observations in our analysis only to cases where the benefit values fall within the range of this bandwidth. As a result, we next perform power calculations to ensure that we have sufficient observations for robust inference even within this restricted sample. We conduct power calculations using the number of observations in the smallest optimal bandwidth of $950 to obtain the most conservative estimates of the minimum detectable effect on each of our outcomes within the restricted bandwidth. In our sample, there are 4,130 beneficiaries with PPD awards between $5,050 and $6,950,with 2,329 observations below the threshold and 1,801 above the threshold. Table 1 shows that based on the separate sample sizes above and below $6,000,

there is sufficient power to detect differences as small as 0.02-0.04 percentage points from the baseline (under $6,000 group) mean for binary variables, differences in earnings as small as approximately $500 per quarter, and differences in hours as small as 21 hours per quarter.

4.3 Trends in Covariates

Next, in order to test the assumption that the exact benefit value is "as good as random" within this optimal bandwidth, we compare both the frequency of claims, and the characteristics of claims and the workers who submitted the claims, on either side of the $6,000 threshold. First, Figure 2 tests for "bunching" in the frequency of claims on either side of the threshold (McCrary 2008). As described above, the exact value of the PPD benefit is determined by a complex formula based on impairment ratings, body parts of injury, the worker's weekly wage, and the state average weekly wage. However, a disproportionately high frequency of claims on either side of the threshold would indicate that workers or raters nevertheless could be behaving strategically.

Figure 2 counts the number of PPD awards in $200 bins. The frequency of awards in each bin is more volatile below $6,000 but generally exhibits a downward trend, which continues above $6,000. We tested whether the frequency of claims changes discontinuously at $6,000 by estimating equation (1) with the frequency of claims as the dependent variable. The δ coefficient is -117.5 with a standard error of 286.3, indicating that there is not a statistically significant break in the trend at $6,000.[3]

[3] We also perform the McCrary Bunching test (McCrary 2008) as an additional check for bunching, as shown in Figure 3. While the difference in frequency estimated by the McCrary Test does indicate a marginally statistically significant difference (p=0.07) in the frequency of claims on either side of the threshold, the magnitude of this difference is small and the graph trends generally are consistent with our regression-based test.

After examining the frequency of claims around the threshold, we next explore worker and injury characteristics. Table 2 shows the average value of a number of worker and injury characteristics for beneficiaries with awards between $5,000 and $5,999 and $6,000-$7,000, in the range of the optimal bandwidth for many of the outcomes of interest. We also present p-values from a test of whether the difference in means on each side of the cut-off is statistically significant.

On average workers with PPD claims are in their early 40s and 70 percent of them are male. The average pre-injury weekly wage is approximately $700 in $2009, and total medical expenditures are approximately $15,000. Workers below the $6,000 cutoff tend to have slightly higher wages, lower medical expenditures, shorter temporary disability durations, lower impairment ratings, and a higher likelihood of returning to work at claim closure. All of these characteristics are consistent with these workers having less severe injuries. Workers below the $6,000 threshold are also less likely to have a traumatic injury and more likely to report a muscle strain or sprain, again consistent with less severe injuries. There are no statistically significant differences in occupation categories across the threshold, with approximately 16 percent of claims occurring in production occupations, 18-19 percent of claims occurring in transportation occupations, 11-12 percent of claims occurring in construction, 7 percent occurring in maintenance.

Table 2 shows the average value of these worker characteristics on either side of the $6,000 threshold, but does not assess whether these differences are the result of gradual trends or discontinuous breaks in the trend of these variables at $6,000. As a result, in Figures 3-4, we present a series of figures analyzing these trends around the threshold.

First, we examine trends in the PPD benefit formula inputs: impairment ratings, injury types, and the pre-injury weekly wage. Figure 3 shows that while the impairment ratings are indeed

increasing with the PPD benefit value, there is no statistically significant break in this trend across the $6,000 threshold. Similarly, the share of injuries classified according to a pre-set "schedule" does not demonstrate any strong trend across the $6,000 threshold, nor does the average weekly wage. Figure 4 shows the trends in a variety of other observable claim characteristics, including age, gender, and injury type (measured by the share of claims for muscle strains or sprains or cuts/burns). As in Figure 3, all of these characteristics trend smoothly through the $6,000 cutoff, with no evidence of a discontinuous break in this trend.

Together, these statistics support the validity of using an RD approach with the $6,000 threshold in PPD benefits. There are sufficient observations within the optimally chosen bandwidth around the discontinuity to estimate regressions with reasonable power, there is little evidence of strategic bunching in the frequency of claims, and there are no discontinuous breaks in observable characteristics of claims across the threshold. Next, we estimate the regressions described in equation (1).

5. Results

To illustrate our approach, Figure 5 shows trends around the $6,000 threshold for three of our main outcome variables of return to work, earnings, and hours in the first quarter after claim closure. As can be seen from the figure, all three outcomes trend smoothly across the $6,000 threshold, with little evidence of a discontinuous break.

Table 3 shows the regression results from equation (1) with five outcome variables: an indicator for whether a worker returns to work in the first quarter after claim closure; log earnings and log hours worked in the first quarter after claim closure, respectively (conditional on returning

to work); and earnings and hours worked in the first quarter after claim closure, respectively (unconditional on returning to work).[4] We ran a regression with each outcome first without any controls beyond the running variable, and then adding controls for impairment rating, injury type, weekly wage, age, gender, and occupation.

Columns (1) –(2) show that there is no statistically significant effect of changing the default payment from a lump sum to a monthly payment on the probability of returning to work in the first quarter after injury, with and without controls. Column (3) shows a marginally significant effect on log earnings in the first quarter after injury in the specification without controls, but the effect is no longer statistically significant in column (4), after including controls.[5] Similar to the pattern for log earnings, column (5) shows a statistically significant effect on earnings in levels in the first quarter after injury in the specification without controls, but the effect is no longer statistically significant in column (6), after including controls. There is no statistically significant effect on log hours as shown in columns (7) and (8). Finally, columns (9) – (10) similarly find a statistically significant negative effect on unconditional hours without controls, but again, both the magnitude and precision of the effect are substantially reduced after including controls – suggesting including these controls may be important accounting for the trends in inputs to the benefit calculation.

As an additional check on these results, we examine whether the results are different for lower wage workers. Because the monthly payment amount is smaller for these workers, they tend to receive the monthly payments for a longer period of time, meaning the difference in the available amount of cash on hand between a lump sum of $5,999 and the amount provided in monthly payments will be largest for these workers. We re-estimated equation (1) using separate

[4] We also ran the regression with log outcomes including zero values (e.g., log(earnings + 1) and find similar results.

[5] We also estimated the log earnings and hours specifications including zero values, and find similar results.

subsamples of workers with pre-injury wages below and above the median wage observed in the sample. The results are presented in Table 4. However, Table 4 shows that we still do not find statistically significant evidence of any meaningful changes in labor supply associated with the differences in available cash on hand for lower wage workers. There are statistically significant effects on return to work, unconditional hours and earnings for higher wage workers, but these results are not robust to including control variables in the regression.

Overall, these results suggest that the default assignment to a lump sum payment or a monthly installment around this particular threshold benefit amount of $6,000 does not have a significant effect on labor supply decisions for workers with permanent partial disabilities resulting from on-the-job injuries in Oregon. There are several possible explanations for this null result. It could be that the difference between receiving $6,000 at once or approximately $1,000-$2,000 over 3-5 months is simply not a large enough change in cash on hand to affect labor supply. If the discontinuity were placed at a higher level with the same monthly payment rate, the difference between a lump sum payment and monthly payments would be much larger, and could affect labor supply behavior to a greater degree. Put differently, it could be that workers do not face such severe cash constraints that a difference of $4,000-$5,000 in the amount received at the time of claim closure is enough to affect their labor supply decisions. These workers likely anticipate that the award will end in a matter of months and they likely make decisions about returning to work (or not) based on a longer time horizon than a few months. In that case, larger payment values or payments for a longer duration could have a greater impact on a worker's available cash on hand in a way that would affect labor supply decisions.

6. Conclusion

In this paper we analyze the extent to which the available amount of cash on hand after a significant and permanent injury affects an individual's return to work decisions. We use a change in the default payment method of PPD workers' compensation benefits in Oregon to explore this question. Workers whose total PPD benefit award is less than $6,000 receive the full amount of their benefit as a lump sum, while those whose awards exceed $6,000 default to be paid in monthly installments. Since the award value cannot easily be manipulated, this abrupt change in the default payment method creates exogenous variation in the amount of cash on hand that a worker will have at the time of claim closure. We perform several tests to validate this assumption, including testing for bunching in the frequency of claims on either side of the $6,000 threshold, and testing for discontinuous breaks in the trends of formula inputs and other worker observable characteristics across this threshold. Claim frequencies and all observed characteristics trend smoothly across the threshold.

After testing these assumptions, we employ a regression discontinuity design to assess the extent to which this variation in the amount of available cash on hand affects labor supply outcomes at the time of claim closure, or in the first full quarter after a claim has closed. We do not find strong, statistically significant evidence that this is the case. There are several possible reasons for this, including the fact that our findings are local to the $6,000 threshold, which may be too low to meaningfully impact labor supply. While it is possible that providing larger benefits in a lump sum could have a greater impact on workers' labor supply decisions, our results do not generalize to benefits far beyond the binding threshold in this case of $6,000.

Nevertheless, prior research has shown that workers facing significant health impairments that limit their ability to work do experience significant drops in consumption following the onset of

the impairment. Disability benefits can have a meaningful effect on these workers' ability to smooth consumption and make ends meet, and it remains plausible that cash on hand can play an important role in labor supply decisions. Future work should explore whether larger differences in the level and duration of monthly vs. lump sum payments have meaningful effects on outcomes of workers with disabilities.

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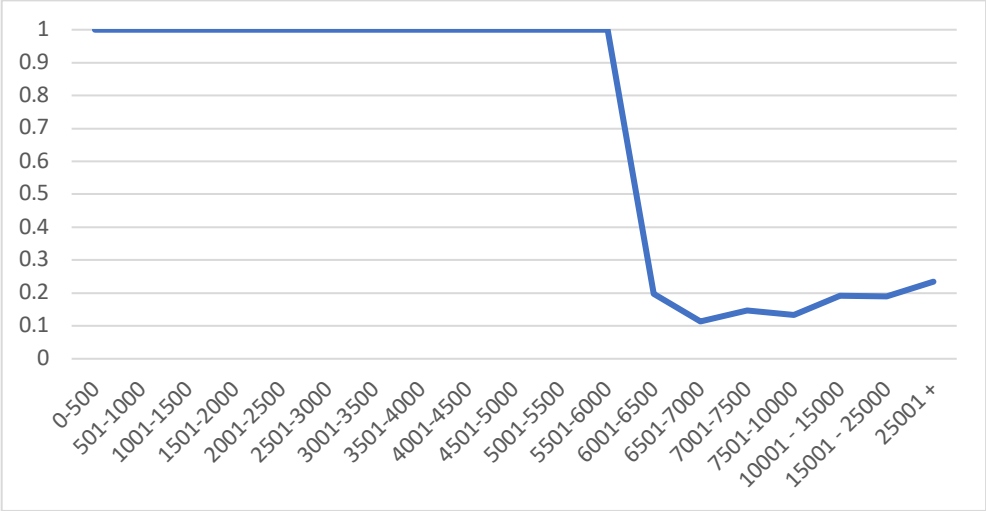
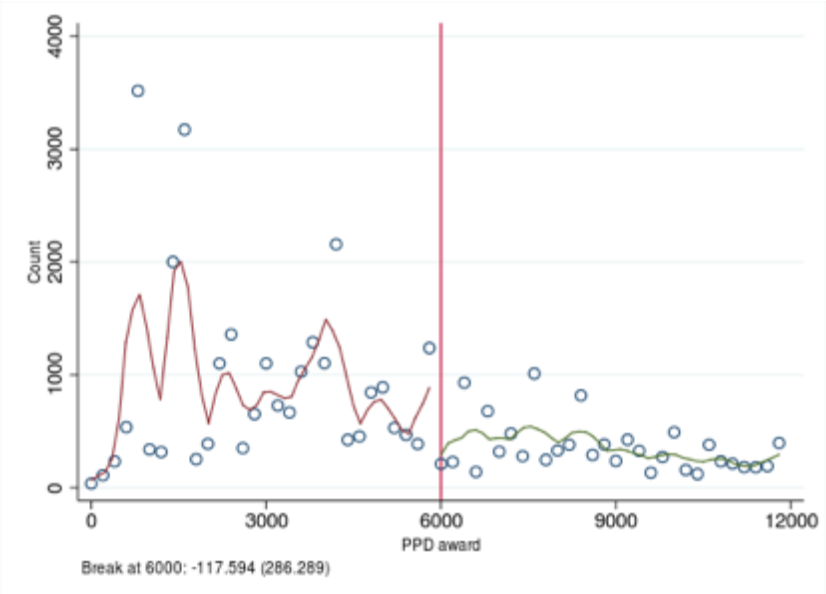
Figure 1: Share of claims that receive payment as a lump sum



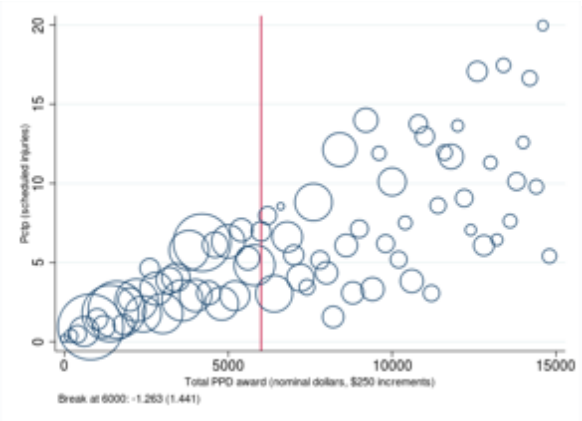
Notes: Author calculations based on correspondence and data on the number of claims requesting to receive payment as a lump sum provided by representatives at SAIF, the largest individual insurer in the Oregon workers' compensation system.

Figure 2: Frequency of Claims Above and Below $6,000

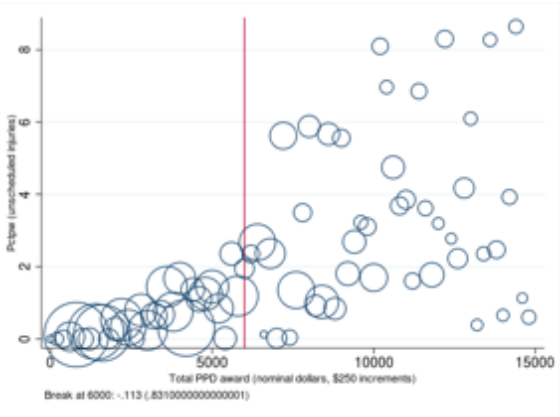


Notes: Data from Oregon Department Business and Consumer Services, 2001-2009.

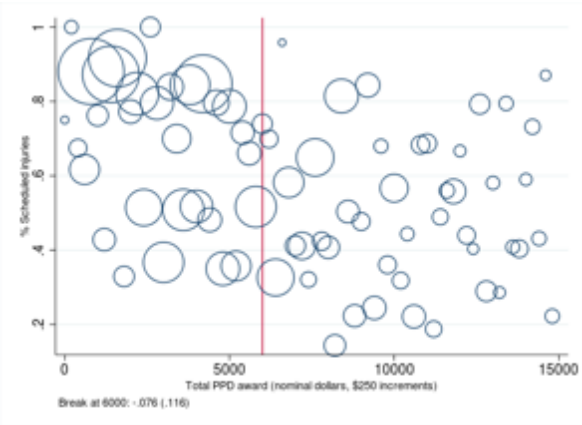
Figure 3: Trends in Formula Inputs through $6,000 cut off



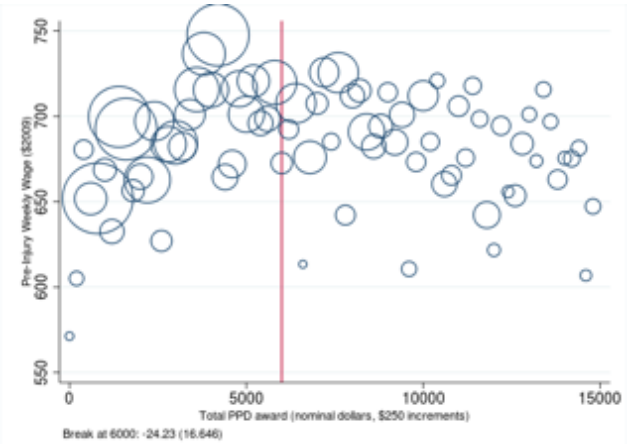
Pct P (if scheduled)



Pct P + W (if unscheduled)



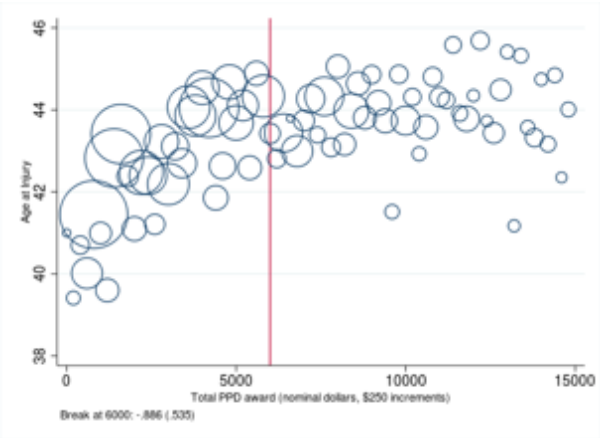
% scheduled



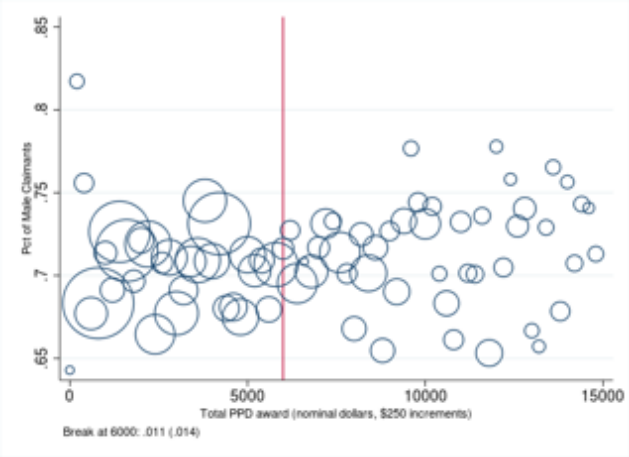
Weekly Wage

Notes: Data from Oregon Department Business and Consumer Services, 2001-2009.

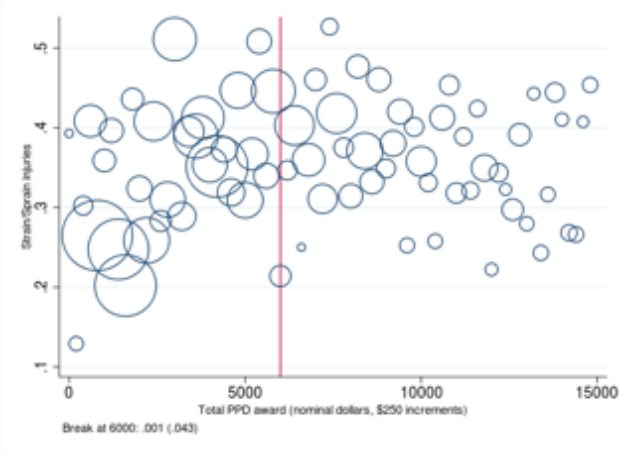
Figure 4: Trends in Worker and Injury Characteristics through $6000 cut off



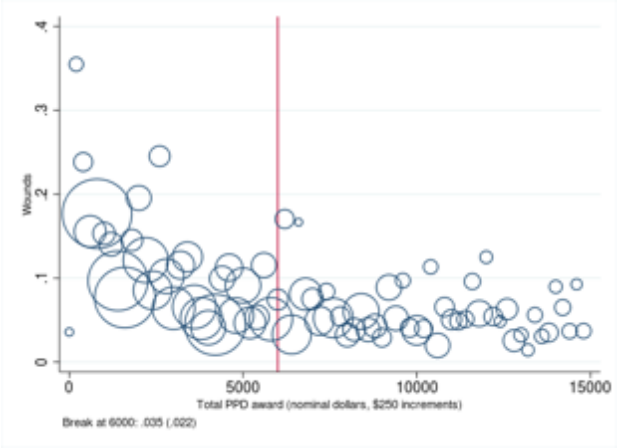
Age



% Male



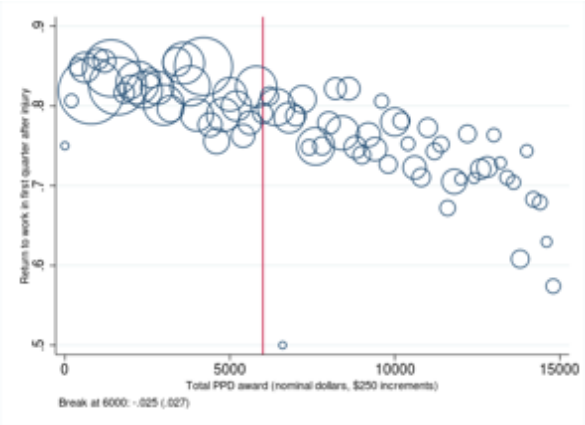
% Strain/sprain



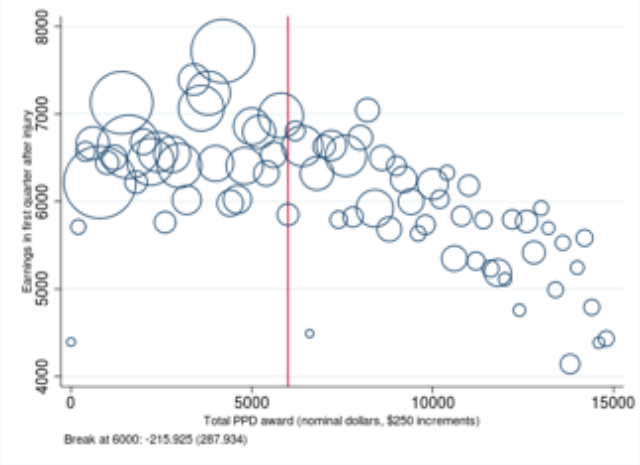
% Wounds

Notes: Data from Oregon Department Business and Consumer Services, 2001-2009.

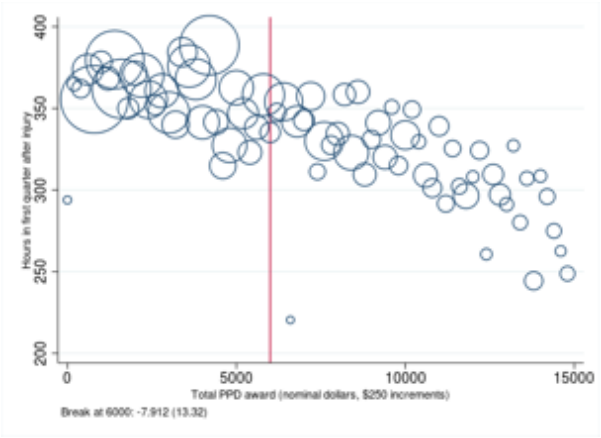
Figure 5: Trends in Outcome Variables, First Quarter after Injury



Return to work



Earnings



Hours

Notes: Data from Oregon Department Business and Consumer Services and Oregon Employment Department, 2001-2009.

Table 1: Power Calculations Based on Estimated Optimal Bandwidth of $950

	Baseline mean	Optimal Bandwidth	Observations within $950 of $6,000	Minimum detectable difference from baseline mean	Observations between $5,050 and $5,999	Observations between $6,000 and $6,950	Minimum detectable difference from baseline mean
Outcomes observed at the time of claim closure							
Returned to work	0.713	1675	4130	0.02	2329	1801	0.03
Returned to work with restrictions	0.048	1850	4130	0.02	2329	1801	0.04
Released to work	0.869	1663	4130	0.01	2329	1801	0.02
Returned to same employer	0.762	1908	4130	0.02	2329	1801	0.03
Outcomes observed in the first quarter after injury							
Return to Work	0.798	1043	4130	0.02	2329	1801	0.04
Earnings	6661.42	2021	4130	245.87	2329	1801	510.08
Hours	348.01	2381	4130	10.13	2329	1801	20.99
Log Earnings	8.76	973.3	4130	0.04	2329	1801	0.08
Log Hours	5.94	952.3	4130	0.03	2329	1801	0.07

Notes: Data from Oregon Department of Business and Consumer Services, 2001-2009. Optimal bandwidth estimated using the data-driven method from Calonico, Cattaneo and Titunik, 2014.

Table 2: Summary Statistics of Beneficiaries near the $6,000 Threshold

	Awards $5,000-5,999	Awards $6,000-7,000	P-value
Claimant Characteristics			
Age	43.97	43.21	0.03
Age > 40	0.65	0.62	0.09
% male	0.70	0.71	0.76
Pre-injury weekly wage ($2009)	712.82	694.12	0.07
Medical expenditures ($2009)	14,262.26	15,448.65	0.00
TTD days	52.08	59.16	0.00
% returned to work at claim closure	0.73	0.69	0.00
% released to work at claim closure	0.87	0.86	0.34
Claim Duration (years)	1.04	1.06	0.29
Injury Characteristics			
Scheduled Injuries	0.58	0.52	0.00
Pct P	5.13	5.55	0.01
Pct P+W	3.75	4.78	0.00
Trauma/unexpected	0.12	0.15	0.02
Fracture/break	0.31	0.31	0.72
Strain/sprain	0.40	0.36	0.02
Wounds, cuts, burns	0.06	0.07	0.45
Other	0.10	0.11	0.36
Pre-injury occupation			
Production	0.16	0.17	0.27
Transportation	0.19	0.18	0.46
Construction	0.12	0.11	0.55
Maintenance	0.07	0.07	0.59
Other Occupation	0.47	0.46	0.88
Observations	2,533	1,811	

Notes: Data from Oregon Department of Business and Consumer Services, 2001-2009.

Table 3: Regression Discontinuity Estimates

Panel A: Labor Supply during First Quarter After Closure										
	Return to Work		Log Earnings		Earnings		Log Hours		Hours	
Claim Award > $6,000	-0.039	-0.028	-0.080+	-0.042	-1,213.40***	-446.09	-0.039	-0.048	-40.63**	-28.71+
	-0.027	-0.023	(0.046)	(0.040)	(397.20)	(285.43)	(0.041)	(0.049)	(16.51)	(16.14)
Observations	37882	35727	28,899	27,116	37,882	35,727	28,478	26,715	37,882	35,727
Optimal bandwidth	1043	1043	2381	2381	973.3	973.3	2021	2021	952.3	952.3
Effective obs	4537	4537	9542	9542	4333	4333	7932	7932	4130	4130
Ymean	0.799	0.799	8.776	8.776	6658	6658	5.948	5.948	347.6	347.6
Covariates?	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES

Notes: Standard errors in parentheses. *** p<0.01, ** p<0.05, + p<0.1. Data from Oregon Department of Business and Consumer Services and Oregon Employment Department, 2001-2009. Regressions estimated using the optimal bandwidth and effective samples sizes as indicated in the table. Additional covariates include: age, gender, injury type, occupation, weekly wage, medical expenditures, temporary disability duration, injury type, impairment ratings, and year FE for year of claim closure

Table 4: Regression Discontinuity Estimates, Workers Below Median Wage

Panel A: Labor Supply during First Quarter After Closure, Below Median Pre-Injury Wage										
	Return to Work		Log Earnings		Earnings		Log Hours		Hours	
Claim Award > $6,000	0.010	0.008	-0.130*	-0.110	-280.68	-184.92	-0.078	-0.084	-21.38	-25.36
	(0.029)	(0.025)	(0.074)	(0.077)	(195.52)	(189.07)	(0.061)	(0.067)	(17.37)	(17.75)
Observations	18,941	17,956	13,372	12,596	18,941	17,956	13,213	12,442	18,941	17,956
Optimal bandwidth	1998	1998	1983	1983	2383	2383	2448	2448	1737	1737
Effective obs	4781	4781	3469	3469	5672	5672	4573	4573	3765	3765
Ymean	0.735	0.735	8.286	8.286	3758	3758	5.802	5.802	291.5	291.5
Covariates?	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES

Panel B: Labor Supply during First Quarter After Closure, Above Median Pre-Injury Wage										
	Return to Work		Log Earnings		Earnings		Log Hours		Hours	
Claim Award > $6,000	-0.088**	0.008	-0.040	-0.105	-1,475.46**	-175.124	0.000	-0.081	-51.16**	-23.49
	(0.036)	(0.026)	(0.054)	(0.077)	(598.03)	(189.99)	(0.054)	(0.066)	(23.10)	(17.48)
Observations	18,941	17,956	15,527	12,596	18,941	17,956	15,265	12,442	18,941	17,956
Optimal bandwidth	944.5	944.5	1738	1738	1031	1031	1648	1648	903.3	903.3
Effective obs	2007	2007	3356	3356	2328	2328	2962	2962	2004	2004
Ymean	0.857	0.857	9.141	9.141	9430	9430	6.041	6.041	397.2	397.2
Covariates?	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES

Notes: Standard errors in parentheses. *** p<0.01, ** p<0.05, + p<0.1. Data from Oregon Department of Business and Consumer Services and Oregon Employment Department, 2001-2009. Sample restricted to beneficiaries with pre-injury weekly wages below the median. Regressions estimated using the optimal bandwidth and effective samples sizes as indicated in the table. Additional covariates include: age, gender, injury type, occupation, weekly wage, medical expenditures, temporary disability duration, injury type, impairment ratings, and year FE for year of claim closure