



Short-term Disability Utilization: Evidence from Wisconsin Public Employees

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The research reported herein was performed pursuant to a grant from the U.S. Social Security Administration (SSA) funded as part of the Retirement and Disability Consortium. The opinions and conclusions expressed are solely those of the author(s) and do not represent the opinions or policy of SSA or any agency of the Federal Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of the contents of this report. Reference herein to any specific commercial product, process or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply endorsement, recommendation or favoring by the United States Government or any agency thereof. The authors are grateful to the State of Wisconsin Employee Trust Funds for partnering on this project, especially Erin Esser, Jim Guidry, and Tarna Hunter. We also thank Tia Westhoff for research assistance.

Abstract

Employer-provided disability coverage offers employees a way to insure against short-term spells of disability that prevent work, as well as a way to supplement long-term disability in the case of a health shock. Using administrative data from the State of Wisconsin, this study estimates employee enrollment into optional supplemental coverage for income continuation. We find that the majority, but not all, employees enroll, and that enrollment is sensitive to the employee's share of the premium. Women, middle age workers and higher income workers are all more likely to enroll in coverage. We also show interactions between disability insurance and accumulated sick leave, which substitutes for short-term coverage. Short-term benefit claims are common for women for maternal health for a short period, but for men and all workers with certain conditions, short-term benefits often extend into long-term coverage. Among those employees who end up on long-term disability, the income continuation insurance helps them replace more of their pre-disability income. However, there is a high degree of heterogeneity in the enrollment and use of short-term coverage, and there is some evidence employees may not fully understand coverage elimination periods.

Keywords: Disability Insurance, Employee Benefits
JEL H75, I18, I38, J14, J22

1 Introduction

Nationally, about one-third of workers have private disability insurance they obtain through the workplace (United States Government Accountability Office, 2018), and about one quarter of state and local employees have access to employer-provided disability insurance (Munnell et al., 2014). Public sector employers often provide long-term disability coverage as a component of defined-benefit pensions or other retirement plans (Quinby, Quinby). However, state and local government employees are less likely to have supplemental short-term disability insurance than private sector workers (Luznar and Costa, 2019). What role do employer-based disability programs have for employees who have short-term disabilities? We turn to data from one state program to better understand how employees may use short-term disability coverage for disability spells that are not eligible for Social Security Administration Disability Insurance (SSDI) or long-term disability embedded into pension benefits.

The Wisconsin Department of Employee Trust Funds (ETF) administers Wisconsin Retirement System (WRS) and other benefit programs for the over 258,000 current employees, and nearly as many former Wisconsin public employees, retirees, and their beneficiaries working in state and local government.¹ ETF is the ninth largest public pension fund in the US, and 25th largest public sector benefits provider in the world (Wisconsin Department of Employee Trust Funds, 2020).²

ETF administers Income Continuation Insurance (ICI) as an optional disability program that replaces three-quarters of an employee's earnings. The disability does not have to be work-related. The coverage is optional, and premiums vary in price depending on the type of employee, year, and length of employment.

This study uses administrative data from ICI for two sets of employees: University of Wisconsin (UW) academic employees who enrolled from 2009 to 2018, and non-UW employees who enrolled from 2013 to 2018.³ We also have access to ICI claims from 2011 through 2017, with more detailed data from 2015 to 2017. We use these datasets to answer the following questions:

1. What types of employees enroll in ICI? How sensitive are employees to premiums?
2. How do employees use short-term (under one year) ICI benefits? How long do employees stay on short-term benefits?
3. Which employees who claim short-term disability coverage are likely to transition to long-term disability benefits?

¹Milwaukee County and the City of Milwaukee are in separate systems. For reference, the state of Wisconsin had 360,700 public sector employees in total at the start of 2020 (Bureau of Labor Statistics, 2020).

²About one-quarter of all public employees in the US are not covered by Social Security (United States Government Accountability Office, 2018). However, in Wisconsin, only a small number of firefighters and first responders exempt from Social Security contributions as part of Social Security Administration Section 218 agreements.

³These time period differences are based on data limitations and ETF's shared electronic files.

2 Employer-based Disability Coverage

About 26 percent of local and state government workers had access to short-term disability coverage in 2018, and 38 percent to long-term benefits (Bureau of Labor Statistics, 2018). Long-term disability benefits are typically due to a permanent inability to work, and may persist until the employee claims retirement benefits. Short-term benefits are typically between 30 days and one year in length, although short-term coverage may also interact with employee sick leave and other leave to cover longer periods.

Employer-provided disability insurance plans are typically an optional benefit, and employees have to take steps to enroll. While premiums may be subsidized by the employer, employees may also have an out-of-pocket premium. Coverage has waiting or elimination periods, which means benefits cannot be claimed until after 60 days, 90 days, or even longer periods of being disabled. These elimination periods play a similar role to a deductible, requiring the employee to internalize some of the costs of the disability and reduce the phenomenon economists label ‘moral hazard’.

Based on one estimate, 60 percent of the top 10 percent of wage earners have private disability insurance, compared to only four percent of the bottom 10 percent of wage earners (United States Government Accountability Office, 2018). Studies by Coe and Belbase (2015), as well as Brown et al. (2016) show that people with an option to enroll in private disability insurance may fail to enroll for several reasons, aside from the cost of premiums. Employees may underestimate their chances of having a disability, assume that they can self-insure, or plan on using SSDI in case of a major health event that limits work. However, SSDI is not necessarily a sufficient substitute. SSDI does not provide short-term benefits. It also requires longer employment periods prior to claiming and may take longer to adjudicate a claim. Thus, private coverage can serve as bridge until SSDI benefits begin for people with long-term work limitations (Thompkins et al., 2014).

There are not many studies of employer-provided disability insurance or disability pensions, especially in the context of public-sector workers in the US (Anand and Wittenburg, 2017). One notable study of public sector employees in the United Kingdom is the Whitehall II study of civil servants in the 1980s (Stansfeld et al., 1999). Survey data often do not include details on disability coverage provided by employers, and administrative data sources are not widely available for researchers.

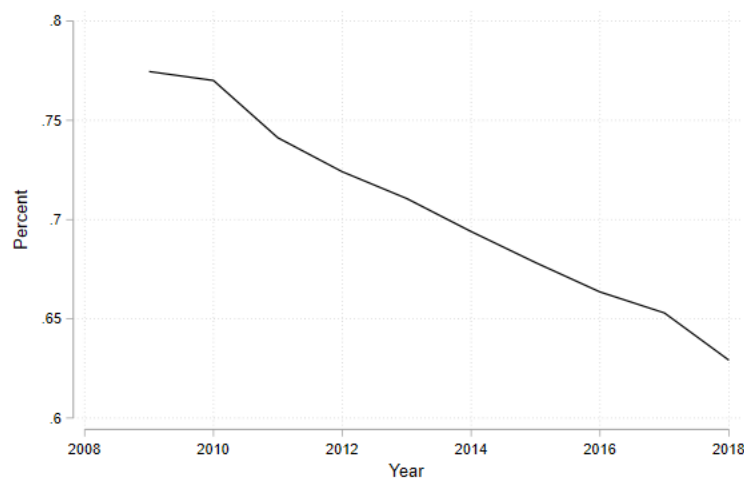
2.1 Wisconsin’s Income Continuation Insurance

For state and local workers in Wisconsin, ICI is an optional income replacement benefit for state and local agency employees in the Wisconsin Retirement System (WRS). ICI provides up to 75 percent of average monthly earnings (based on the previous calendar year) with a maximum monthly benefit of \$4,000 (as of 2020). Employees who earn more than \$64,000 annually can opt into additional supplemental coverage with a total maximum combined benefit of \$7,500 per month. Benefits are offset by income received from other sources, including Social Security, unemployment, workers compensation, WRS benefits, earnings, duty

disability (for protective workers such as law enforcement), and any other salary continuation plan. ETF contracts with a third party administrator to determine eligibility, process claims, and administer benefits. Employees can enroll in ICI within 30 days of hire. If the employee chooses not to enroll initially, they may enroll at a later time.⁴

ETF separates the local employee and state employee ICI insurance pools. The state pool has had a series of premium increases in the last decade, which may contribute to the declines in enrollment as shown in Figure 1. The local pool is smaller and premiums are covered fully by the employer in most years, and as a result, almost all eligible local employees enroll (Guidry, 2019).

Figure 1: State Employee Enrollment in ICI



Findings: Between 2009 and 2018, the ICI enrollment rate for state employees dropped from 77 percent to 63 percent. *Source: ETF State ICI enrollment administrative data, 2009–2018.*

Within state employees, University of Wisconsin (UW) and non-UW employees have separate options and premium structures.⁵ For non-UW academic employees (also referred to as regular state employees), the ICI premiums are based on their sick leave balance and earnings. On the other hand, UW faculty and academic staff choose the elimination periods from four options (30, 90, 125, or 180 days), which together with earnings, would determine their premiums.

There are six premium categories for regular employees, depending on the employee's sick leave balance. The sick leave is applied to only working days, instead of calendar days. For

⁴Employees may defer enrollment until they have accumulated sick leave to receive an employer contribution to lower their premium. Employers are responsible for notifying employees that they are eligible to enroll. Alternatively, employees may enroll after initial enrollment period by submitting documentation that they are medically insurable.

⁵UW academic staff and faculty are treated separately from non-academic staff. The latter have the same ICI options as regular state employees.

example, having 23 days of sick leave roughly corresponds to having to wait for one month. Table 1 lists all the premium categories.

Table 1: Premium Categories for Regular, Non-UW, Employees

Premium category (<i>p</i>)	Sick leave balance	
	In working days	In calendar month
1	Less than 23	Less than 1
2	23-64	1-3
3	Special category	
4	65-90	3-4
5	91-130	4-6
6	More than 130	More than 6

Claimants are required to exhaust all their sick leave balance up to 130 working days before they can receive the first benefit payment.⁶ The premium amount decreases as a worker accumulates more sick leave. In addition, categories 4 through 6 are considered ‘permanent plateau’ categories. Once an employee accumulated enough sick leave to qualify for any of the permanent plateau categories, future premiums will be determined using that plateau category, even if the actual sick leave balance drops below the threshold. Moreover, employees who are yet to achieve the permanent plateau category may be eligible for a special premium category 3. To qualify for this category, a full-time employee must accumulate at least 10 days of sick leave during the previous calendar year. When employees reach category 3, their employer begins to cover part of the employee’s premium. This premium is lower than the bottom two categories, but higher than the premiums of the permanent plateau categories.

Similarly, UW employees are also required to exhaust their sick leave balance up to 130 days or serve the elimination period that they selected, whichever is longer, before they can collect any benefit payment. The elimination period is measured in calendar days, while the sick leave is measured in working days. Having 130 days of sick leave is roughly equal to having to wait for 6 months, which is also the longest elimination period available (180 days). Premiums are lower for longer elimination period.

The premium amount is a fixed percentage of earnings for ICI standard coverage. For example, in 2018 the premium amount for the category with the shortest waiting period is 1.9 percent of earnings for regular employees and 1.1 percent of earnings for UW academic employees. The state may pay some portion of the premiums of ICI standard coverage. For regular employees, the state generally pays an increasing portion of the premium as an employee accumulates more sick leave. On the other hand, the state’s portion is fixed for UW academic employees regardless of the elimination period that they selected. The state subsidizes the premiums only for UW academic employees with one year or more of state service. Moreover, the premiums for the category with the longest waiting period is \$0 – the state fully subsidizes the premiums.

Employees can also select into supplemental coverage for annual earnings between \$64,000 and \$120,000. For both UW and non-UW ICI participants, the employee pays the entire share

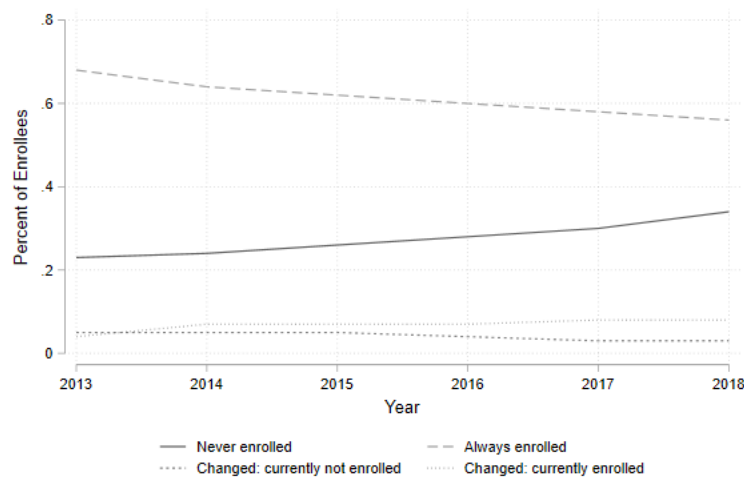
⁶A claimant is exempted from this rule if he or she successfully applied for Disability Retirement or Duty Disability benefit.

of the supplemental coverage premium. The additional premium for supplemental coverage is an increasing percentage of earnings. For example, in 2018, the additional premium amount for non-UW employees varied from 0.04 percent of earnings to 1.09 percent of earnings for regular employees. Similarly, for UW academic employees, the premium amount varies from 0.04 percent to 0.95 percent of earnings.

There has been a steady increase in the premium amount throughout 2009–2018. The premium for regular employees for the category with the shortest waiting period increased from 0.9 percent of earnings in 2010 to 1.9 percent of earnings in 2018. The corresponding premium for UW academic employees increased from 0.5 percent to 1.1 percent.

The increase in premium may have contributed to the drop in enrollment. Figures 2 and 3 illustrate the enrollment patterns of regular employees and UW academic employees, respectively. Employees are divided into four groups: never enrolled, always enrolled, those who changed their enrollment but are currently not enrolled, and those who changed their enrollment but are currently enrolled. The drop in enrollment can be explained by a growing portion of employees who are never enrolled and the decreasing portion of employees who are always enrolled. Despite the nearly consistent increase in premiums, only 3 percent of employees took the effort to drop out of the program. In fact, it is more common for employees to take up ICI than it is to drop out, especially among UW academic employees. Table 2 shows the breakdown. ICI enrollment is discussed in more detail in subsequent sections of the paper.

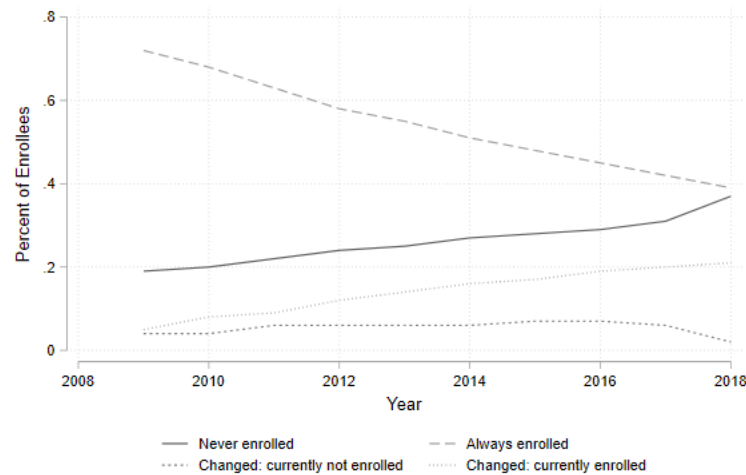
Figure 2: Enrollment in ICI, Non-UW Academic Employees



Findings: Between 2013 and 2018, the portion of regular employees who are never enrolled increased from 23 percent to 34 percent, while the portion of employees who are always enrolled decreased from 68 percent to 56 percent.

Source: *ETF State ICI enrollment administrative data, 2013–2018.*

Figure 3: Enrollment in ICI, UW Academic Employees



Findings: Between 2013 and 2018, the portion of UW academic employees who are never enrolled increased from 19 percent to 37 percent, while the portion of employees who are always enrolled decreased from 72 percent to 39 percent.
 Source: *ETF State ICI enrollment administrative data, 2009–2018.*

Table 2: ICI Enrollment for Regular and UW Academic Employees

	Percent of employees	
	Regular	UW academic
Never enrolled	0.36	0.39
Always enrolled	0.54	0.41
Changed: not enrolled to enrolled	0.06	0.16
Changed: enrolled to not enrolled	0.03	0.03
Changed: others	0.01	0.01
Total	1.00	1.00

Source: *ETF State ICI enrollment administrative data. Regular employees 2013–2018. UW Employees 2011–2018.*

It should be noted that employees are also covered by one of two other state disability programs, both of which are not optional. The Long-Term Disability Insurance (LTDI) program operated from October 1992 to December 2017. Covered employees who became totally and permanently disabled were eligible for partial income replacement until retirement. Typically, the monthly benefit was 40 percent of final average salary until the employee reached age 65, at which point the employee received retirement benefits. The second DI program is the 40.63 Disability Retirement Benefit, which is only available to employees who continuously worked for any WRS employer since before LTDI was introduced in 1992. These employees may choose between claiming 40.63 benefits or LTDI. 40.63 Disability Retirement Benefit is for employees who have a permanent disability that results in an inability to work prior to normal retirement age. Benefits are paid out through employee retirement accounts based on final average earnings and years of creditable service. ETF phased out the LTDI program, offering only the 40.63 Disability Retirement program to employees starting in

2018. For the time period we study, employees with permanent disabilities more commonly claimed LTDI compared to 40.63 benefits.

3 Enrollment in ICI

The ICI enrollment dataset contains data on UW academic employees who are eligible for ICI coverage from 2009–2018, and regular, non-UW employees from 2013–2108. This dataset covers state employees who chose to enroll and those who chose not to enroll in the program. The dataset was constructed from ETF administrative data on state ICI program enrollment, employment history, and earnings and service. The data include records of employee enrollment decision, premium category, supplemental coverage enrollment decision, annual sick leave usage and balance, employment type and agency, employment history, earnings, accumulated service, and age and gender. There are 82,761 state agency employees from 2013–2018 and 39,275 UW System academic employees from 2009–2018. Table 3 describes sample characteristics pooling the annual observations across all periods.

Table 3: Pooled Summary Statistics for State ICI

	Mean
Age	44.81
Percent female	0.54
Percent UW academic employees	0.39
Accumulated service	13.89
Sick leave usage (days)	4.73
Sick leave balance (months)	83.77
Earnings (thousands)	57.78
Percent above supplemental coverage limit	0.33
Employment type	
Percent general employees	0.49
Percent educational employees	0.40
Percent protective service employees	0.10
Percent other types employees	0.01
For regular employees:	
Premium for less than 23 days premium category (dollars)	42.64
Premium for 23-64 days premium category (dollars)	41.90
Premium for special premium category (dollars)	9.63
Premium for 65-90 premium category (dollars)	5.46
Premium for 91-130 days premium category (dollars)	3.00
Premium for more than 130 days premium category (dollars)	0.00
Percent eligible for less than 23 days premium category	0.32
Percent eligible for 23-64 days premium category	0.10
Percent eligible for special premium category	0.15
Percent eligible for 65-90 premium category	0.09
Percent eligible for 91-130 days premium category	0.09
Percent eligible for more than 130 days premium category	0.24
For UW academic employees:	
Premium for 30 days EP (dollars)	28.07
Premium for 90 days EP (dollars)	7.94
Premium for 125 days EP (dollars)	6.19
Premium for 180 days EP (dollars)	0.78
Percent chose 30 days EP	0.15
Percent chose 90 days EP	0.24
Percent chose 125 days EP	0.03
Percent chose 180 days EP	0.25
Observations	515,642

Source: *ETF State ICI enrollment administrative data. Regular employees 2013–2018. UW Employees 2009–2018.*

3.1 Estimating ICI Enrollment

We examine which eligible employees opt into optional coverage for disability from the state ICI program. Since UW academic employees face a different pricing structure for ICI, we model their enrollment separately. The specifications for regular employees are as follows:

$$\begin{aligned}
Enroll_{it} = & \beta_0 + \sum_{p=1}^5 \beta_1 Premium_Category_{ipt} \\
& + \beta_3 Female_i + \sum_{j=2}^4 \beta_{4j} Employment_Category_{ij} + \sum_{k=2}^8 \beta_{5k} Age_Category_{ikt} \\
& + \sum_{m=2}^5 \beta_{6m} Earnings_Category_{imt} + \beta_7 Sick_Leave_Usage_{it-1} + \omega_q + \tau_t + \epsilon_{it}
\end{aligned} \tag{1}$$

$Enroll_{it}$ is a dummy variable that equals to one if regular employee i enrolled in ICI in year t . We used two different measures of premiums in separate regressions. $Premium_Dollar_{it}$ is the dollar amount of premium for employee i in year t . $Premium_Category_{ipt}$ is a set of dummy variables which equals to one if employees i is in premium category p in year t . We used premium category 6 (i.e. more than 130 days of sick leave and the category which costs zero dollar to employees), as the baseline category. While the premium amount in dollar may be the more intuitive measure of premiums, we used the premium categories to consider possible discontinuity in enrollment when a worker moves from one category to the next.

$Female_i$ is a dummy variable that equals to one if employee i is female. $Employment_Category_{ij}$ is a set of indicators for a worker's employment type. There are four types: general category, educational category, protective service category, and others category. The general category serves as the baseline. $Age_Category_{ikt}$ is a set of dummy variables for the age categories. For the age category less than 40, we further separated the category into male and female employees. We do this to capture possible use of ICI by female enrollees of childbearing age as maternity leave.⁷ Furthermore, we use age categories to incorporate age cutoffs for ETF retirement benefits, which vary by employment categories as shown in Table 4.

Table 4: Retirement ages for Social Security and WRS

Categories	Minimum retirement age	Normal retirement age
Social Security old age benefits	62	65 or 67
WRS retirement benefits		
General category	55	65
Educational category	55	65
Protective service category	50	53 or 54
Others category	55	62 or 65

$Earnings_Category_{imt}$ is a set of indicators for the earnings categories. These incorporate the minimum and maximum thresholds for supplemental coverage of \$64,000 and \$120,000, respectively. $Sick_Leave_Usage_{it-1}$ is the number of sick leave days that employee i used in the previous year. Ω_q and ω_q are the fixed effects for state government agencies. Finally, T_t and τ_t are the year fixed effects. We also ran similar regressions with worker-level fixed effects to estimate changes in premiums or incomes. We exclude variables that are not time varying, such as gender and employment category. Lastly, we clustered the standard errors at the employee level for all regressions since individuals are repeated annually.

⁷The range of childbearing age can be as wide as 16 to 49 (CDC, 2017), although most pregnancies happen at age 20 to 35 (Parker et al., 2013).

The regressions for UW academic employees are similar.

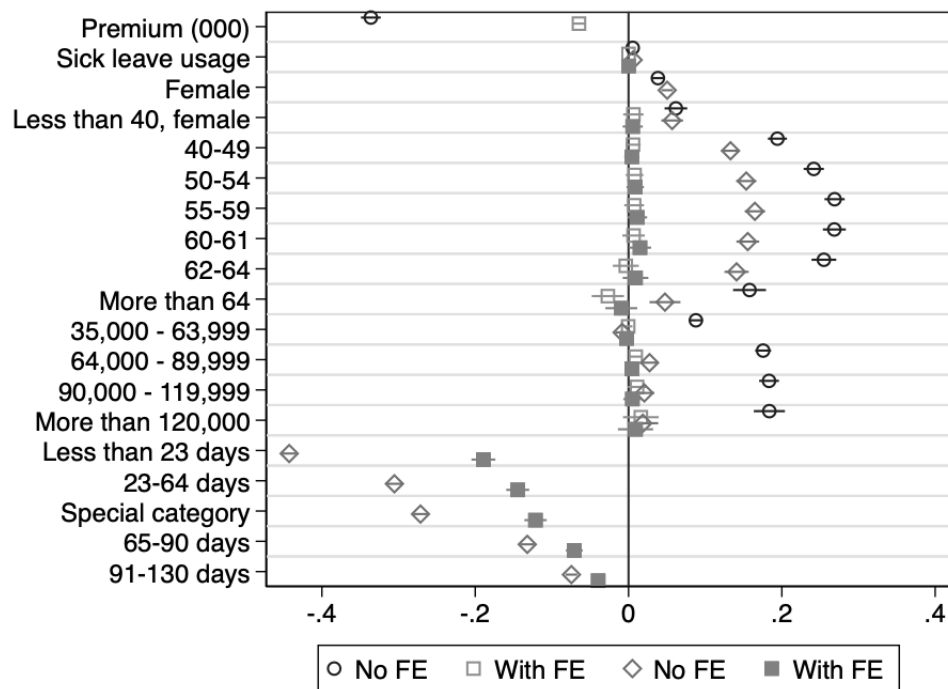
$$\begin{aligned}
 Enroll_{it} = & \delta_0 + \delta_1 Premium_{it} \\
 & + \delta_2 Female_i + \delta_3 Less_One_Year_Service_{it} + \sum_{k=2}^8 \delta_{4k} Age_Category_{ikt} \\
 & + \sum_{m=2}^5 \delta_{5m} Earnings_Category_{imt} + \delta_6 Sick_Leave_Usage_{it-1} \\
 & + \delta_7 Sick_Leave_Balance_{it} + v_{it}
 \end{aligned} \tag{2}$$

Less_One_Year_Service_{it} is an indicator which equals to one if worker *i* has less than one year of service with the State of Wisconsin in year *t*. *Sick_Leave_Balance_{it}* captures the amount of sick leave in months that worker *i* had accumulated at the beginning of year *t*. We also ran similar regressions with worker fixed effects (dropping gender).

3.2 Regular Employee Enrollment in ICI

Figure 4 shows the estimates for employee enrollment in ICI. As expected, a higher premium is associated with lower enrollment. A \$100 increase in the monthly premium is correlated with a 9.2 percentage point decrease with fixed effects. The enrollment rate increases as a worker moves up the premium category. For instance, moving from the premium category of 91-130 days to the premium category of more than 130 days, which has a lower cost, is associated with a 4 percentage point increase with worker fixed effects.

Figure 4: Premiums and Enrollment for Regular/Non-UW Academic Employees



Findings: A higher premium is associated with lower enrollment. The enrollment rate increases as a worker moves up the premium category. Furthermore, the following characteristics are associated with higher enrollment rate: female, protective service category, older ages, greater sick leave use, and higher earnings. *Notes: Standard errors are clustered at the employee level. N = 172,622. Source: ETF State ICI enrollment administrative data 2013–2018.*

Table 5 shows the point estimates from Figure 4. Female employees are 4.3 to 5.0 percentage points more likely to enroll in ICI compared to their male counterparts. Among the four employment categories, employees in the protective service category is the mostly likely to enroll, followed by the general category, others category, and the educational category. This may reflect the higher risk of work-related disability that comes with protective service occupations.

Furthermore, older workers are more likely to enroll compared to younger workers, although this tendency drops after age 59. For example, the enrollment among workers age 55-59 is 11.5 percentage points higher than the enrollment among workers older than 64. Workers in the oldest age category is less likely to enroll compared to workers age 40 to 49. ICI may be less attractive to workers above age 60 because those who are vested employees have the option to retire early if they acquire a disability. We also observe that a female worker under age 40 is 5.6 to 5.7 percentage points more likely to enroll than a male worker of the same age.

There is also a modest positive correlation between enrollment and sick leave usage, which is a proxy for a worker's health. Using an additional day of sick leave used in the prior year

is associated with a 0.6 percentage point increase in ICI enrollment. Higher annual earnings is also correlated with more likely employee enrollment in ICI. For example, an employee earning more than \$120,000 is 1.9 to 13.6 percentage points more likely to enroll than an employee in the lowest earnings category, earning less than \$35,000.

Table 5: Enrollment and characteristics of regular employees, 2013–18

	(1)	(2)	(3)	(4)
	Enrollment	Enrollment	Enrollment	Enrollment
Premiums				
Premium (hundred dollars)	-1.112*** (0.018)		-0.092*** (0.011)	
Premium (hundred dollars), squared	1.007*** (0.022)		0.031*** (0.012)	
Less than 23 days		-0.443*** (0.005)		-0.189*** (0.008)
23-64 days		-0.305*** (0.006)		-0.145*** (0.008)
Special category		-0.271*** (0.005)		-0.121*** (0.007)
65-90 days		-0.132*** (0.005)		-0.071*** (0.006)
91-130 days		-0.074*** (0.004)		-0.040*** (0.004)
Gender				
Female	0.043*** (0.004)	0.050*** (0.004)		
Sick leave				
Sick leave usage in prior year (days)	0.006*** (0.000)	0.006*** (0.000)	0.000 (0.000)	0.000** (0.000)
Employment category				
Educational	-0.327*** (0.012)	-0.295*** (0.012)		
Protective	0.114*** (0.005)	0.109*** (0.005)		
Others	-0.062*** (0.017)	-0.051*** (0.017)		
Age category				
Less than 40, female	0.056*** (0.007)	0.057*** (0.007)	0.007 (0.007)	0.005 (0.007)
40-49	0.176*** (0.006)	0.133*** (0.006)	0.006 (0.005)	0.004 (0.005)
50-54	0.214*** (0.007)	0.154*** (0.007)	0.008 (0.006)	0.009 (0.006)
55-59	0.237*** (0.007)	0.165*** (0.007)	0.008 (0.007)	0.011* (0.007)
60-61	0.232*** (0.008)	0.156*** (0.008)	0.007 (0.007)	0.015** (0.007)
62-64	0.220*** (0.008)	0.141*** (0.008)	-0.003 (0.009)	0.009 (0.009)
More than 64	0.122*** (0.011)	0.048*** (0.010)	-0.026** (0.011)	-0.009 (0.011)
Earnings category				

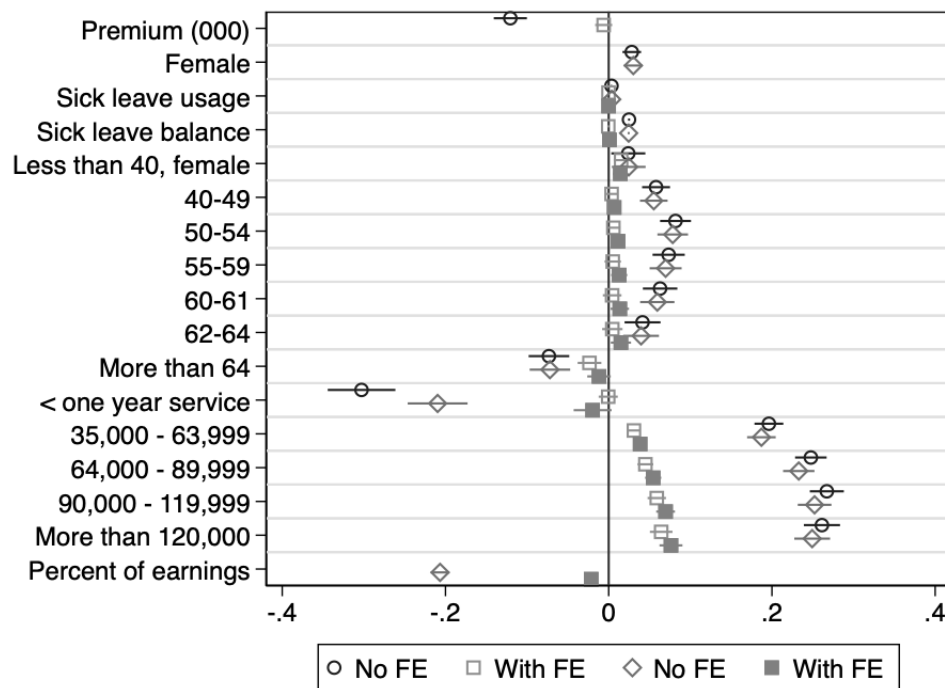
35,000 - 63,999	0.071*** (0.005)	-0.008* (0.004)	-0.000 (0.003)	-0.002 (0.003)
64,000 - 89,999	0.128*** (0.005)	0.027*** (0.005)	0.009** (0.004)	0.004 (0.004)
90,000 - 119,999	0.137*** (0.007)	0.021*** (0.007)	0.011* (0.006)	0.005 (0.006)
More than 120,000	0.136*** (0.010)	0.019* (0.010)	0.016 (0.012)	0.009 (0.012)
Year fixed effects				
2015	-0.001 (0.002)	-0.005** (0.002)	0.001 (0.001)	-0.004*** (0.001)
2016	-0.038*** (0.003)	-0.048*** (0.003)	-0.005** (0.002)	-0.019*** (0.002)
2017	-0.049*** (0.003)	-0.062*** (0.003)	-0.001 (0.002)	-0.022*** (0.002)
2018	-0.071*** (0.003)	-0.077*** (0.003)	0.006** (0.002)	-0.024*** (0.002)
Employee-level fixed effects	No	No	Yes	Yes
Observations	170,166	172,603	170,185	172,622
R ²	0.17	0.22	0.01	0.02

Notes: Standard errors are clustered at the employee level and reported in the parentheses. Employer agency fixed effects. Columns 1 and 2 report the models without worker-level fixed effects, while columns 3 and 4 report the models with worker-level fixed effects. Source: ETF State ICI enrollment administrative data 2013–2018.

3.3 UW Academic Employee Enrollment

The results for UW academic employees are roughly similar to those of non-UW regular employees. Figure 5 shows the estimates, also displayed in Table 6. Higher premium are again associated with lower enrollment in ICI. A \$100 increase in the monthly premium is correlated with a 0.6 percentage point decrease in the model with employee-level fixed effects. When we consider the premium as a percentage of earnings, we find that an increase in one percentage point in premium as a fraction of earnings is associated with a 20.7 percentage point decrease in enrollment in the model without worker fixed effects and 2.1 percentage points decrease in the model with worker fixed effects. On average, the premium for 30 days elimination period is 1.01 percent of monthly earnings. Workers who have less than one year of service with the State of Wisconsin are less likely to enroll compared to those who have more than one year of service. This reflects the fact that after one year of service, UW academic workers are eligible for employer contribution towards ICI premiums that would substantially lower their premiums.

Figure 5: Premiums, Worker Characteristics, and Enrollment for UW Academic Employees



Findings: A higher premium (in terms of dollars and percentage of earnings) is associated with lower enrollment. Furthermore, the following characteristics are associated with higher enrollment rate: having more than one year of state service, greater sick leave balance, greater use of sick leave, female, older ages, and higher earnings. *Notes: Standard errors are clustered at the employee* $N = 161,406$. *Source: ETF State ICI enrollment administrative data 2009–2018.*

Moreover, employees with a higher sick leave balance are also more likely to enroll. Having an additional month of sick leave is correlated with a 2.4 to 2.5 percentage point increase in enrollment. Non-UW/regular employees with a higher sick leave balance can lower their premiums by choosing a longer elimination period while not having to wait longer before receiving the first benefit check. This may explain the positive relationship between sick leave balance and enrollment. Similar to the results for regular employees, we observe that a greater use of sick leave (drawing down balances) is positively associated with enrollment, although the correlation is modest. Using an additional day of sick leave in the previous year is associated with a 0.3 to 0.4 percentage point increase in enrollment. This vaguely suggests that less healthy workers may self-select into participating in ICI.

Female workers are more likely to enroll compared to their male counterparts. The enrollment rate of female employees of childbearing age (under age 40) is 2.4 to 2.5 percentage points higher compared to male employees of the same age. More generally, female workers are 2.8 to 3.0 percentage points more likely to enroll compared to male workers. Enrollment increases as a worker ages, but this trend reverses after age 54. For example, a worker age

50-54 is 8.2 percentage points more likely to enroll compared to a male worker younger than 40, and 15.5 percentage points more likely to enroll compared to a worker older than 64. Similar to non-UW employees, having access to early retirement may explain why enrollment decreases for UW academic employees after the minimum retirement age.

Lastly, having higher earnings is positively correlated with enrollment. Workers in the highest annual earnings category (more than \$120,000) are 26.1 percentage points more likely to enroll compared to workers earning less than \$35,000. This implies that a voluntary disability program such as ICI may be considered as a luxury good, with increasing demand as income rises.

Table 6: Enrollment and characteristics of UW academic employees, 2009–18

	(1)	(2)	(3)	(4)
	Enrollment	Enrollment	Enrollment	Enrollment
Premiums				
Premium (hundred dollars)	-0.121*** (0.010)		-0.006 (0.005)	
Premium (percent of earnings)		-0.207*** (0.006)		-0.021*** (0.004)
Gender				
Female	0.028*** (0.006)	0.030*** (0.006)		
Accumulated service				
Less than one year service	-0.303*** (0.021)	-0.210*** (0.019)	-0.001 (0.006)	-0.020* (0.012)
Sick leave				
Sick leave usage in prior year (days)	0.003*** (0.000)	0.004*** (0.000)	-0.000** (0.000)	-0.000 (0.000)
Sick leave balance (months)	0.025*** (0.001)	0.024*** (0.001)	-0.001 (0.001)	0.001 (0.001)
Age category				
Less than 40, female	0.024** (0.011)	0.025** (0.011)	0.015*** (0.005)	0.014*** (0.005)
40-49	0.058*** (0.009)	0.055*** (0.009)	0.004 (0.004)	0.007* (0.004)
50-54	0.082*** (0.010)	0.078*** (0.010)	0.006 (0.004)	0.011*** (0.004)
55-59	0.073*** (0.010)	0.070*** (0.010)	0.005 (0.005)	0.013** (0.005)
60-61	0.063*** (0.011)	0.060*** (0.011)	0.004 (0.006)	0.014** (0.006)
62-64	0.041*** (0.011)	0.040*** (0.011)	0.004 (0.006)	0.015** (0.006)
More than 64	-0.073*** (0.013)	-0.072*** (0.013)	-0.024*** (0.007)	-0.012 (0.007)
Earnings category				
35,000 - 63,999	0.196*** (0.009)	0.187*** (0.009)	0.031*** (0.004)	0.038*** (0.004)
64,000 - 89,999	0.248*** (0.010)	0.233*** (0.010)	0.045*** (0.005)	0.054*** (0.005)
90,000 - 119,999	0.267***	0.252***	0.059***	0.070***

	(0.011)	(0.011)	(0.006)	(0.006)
More than 120,000	0.261***	0.249***	0.064***	0.076***
	(0.011)	(0.011)	(0.007)	(0.007)
Employee-level fixed effects	No	No	Yes	Yes
Observations	160,434	161,388	160,450	161,406
R^2	0.11	0.12	0.01	0.01

Notes: Standard errors are clustered at the employee level and reported in the parentheses. Columns 1 and 2 report the models without worker-level fixed effects, while columns 3 and 4 report the models with worker-level fixed effects.

Source: ETF State ICI enrollment administrative data 2009–2018.

3.4 ICI and Sick Leave

The pricing structure, and therefore the enrollment decision, for UW academic employees is more complex compared to that of regular employees. Instead of making a binary decision of whether to enroll or not, UW academic employees have to select from four elimination periods if they decide to participate in ICI. Conditional on each employee's perceived probability of disability onset, the optimal decision would take into account a worker's sick leave balance since each employee has to exhaust sick leave balances up to 130 days or wait the entire elimination period, whichever is longer, before receiving the first ICI benefit payment. Consequently, an employee should not choose an elimination period that is shorter than his or her sick leave balance.

For example, if a worker has 5 months of sick leave balance, the optimal elimination period would be 125 days or 180 days. If she chose the elimination period of 125 days, which is roughly equal to 4 months, and successfully applied for ICI benefit, she will have to exhaust all her accumulated sick leave and wait for 5 months because her sick leave balance is longer than her chosen elimination period. If she instead chose the elimination period of 180 days, she will have to wait until she has served the elimination period, which is roughly equal to 6 months. Choosing the elimination periods of 30 days or 90 days are akin to over-insuring, and that coverage is only needed if the employee has a dramatic reduction in sick leave balances.

Table 7 shows the break down of ICI enrollment by the elimination period. On average, 46 percent of ICI enrollees who have elimination periods of 30, 90 or 125 days chose an elimination period that is shorter relative to their accumulated sick leave.

Table 7: Percent of UW Academic Enrollees who Over Insure

	Percent
125 days elimination period	0.56
90 days elimination period	0.43
30 days elimination period	0.48
Total	0.46
Observations	75,262

Source: ETF State ICI enrollment administrative data 2009–2018.

On average, an employee could have paid \$16.62 less per month in ICI premiums. Employees could have chosen the elimination period of 180 days and still received the same level of coverage without the ICI premium being deducted from their paycheck. Table 8 shows how much an employee could potentially saved, broken down by the elimination period that they selected.

Table 8: Potential Savings for UW Academic Enrollees who Over Insure

	Dollar	Percent
125 days elimination period	6.52	1.00
90 days elimination period	8.74	1.00
30 days elimination period	30.44	0.96
Total	16.62	0.99
Observations	34,650	

Source: *ETF State ICI enrollment administrative data 2009–2018*.

One explanation is inattention. Inattention has been shown in the context of health insurance (Heiss et al., 2016). People tend to neglect plan design changes such as copayments and medication coverage and stay in health plans that do not match their needs. Workers may initially choose a short elimination period that is compatible with their sick leave balance but fail to update their selection as they accumulate more sick leave. The burden of the process of figuring out sick leave balances and then the changing the ICI elimination period may not be perceived by employees as being worth the potential benefit of a lower premium.

Employees may also view the elimination period like a deductible. They may see their sick leave balance as something that could decline in case of a health shock, and show a high level of risk aversion even if the risk of using a large number of sick days is unlikely. Sydnor (2010) examines homeowners' insurance, showing people routinely pay for additional premiums than are financially optimal. This pattern is shown for other types of coverage, as well (Fels, 2020). People may also overestimate the costs of a negative event (Cutler and Zeckhauser, 2004; Rabin and Thaler, 2001). A longer elimination period may be viewed as being too long to cover the kinds of health events that workers think they may actually experience (Salkever et al., 2001).

Among UW academic enrollees, only 22 percent ever changed their enrollment throughout 2009–2018. Furthermore, among those who never changed their enrollment, 50 percent never enrolled as shown in Table 9.

Table 9: Enrollment Decisions for UW Academic Employees

	Employees	Percent
Changed enrollment decision at least once	8,580	21.85
Never enrolled	15,479	39.41
Always chose 180 days elimination period	5,691	14.49
Always chose 125 days elimination period	775	1.97
Always chose 90 days elimination period	5,299	13.49
Always chose 30 days elimination period	3,451	8.79
Observations	39,275	

Source: *ETF State ICI enrollment administrative data 2009–2018*.

Only 10 percent of non-UW/regular employees ever changed their enrollment decision in the period of analysis. Among those who never changed their enrollment decision, 40 percent never enrolled and the remaining 60 percent always enrolled, as shown in Table 10. However, it is less clear if this is indicative of suboptimal decision-making. Those who never enrolled may not value the coverage enough to participate in ICI. Those who are always enrolled may be making the optimal decision for a few reasons. First, as workers accumulate more sick leave, the premium amount declines, which makes enrollment more attractive. Second, as workers age, the risk of acquiring a disability increases. Thus, to some extent, a pricing structure that incorporates the sick leave balance helps the employees in making better enrollment decisions and reduces the likelihood of over-insuring. It should be noted, however, that ETF is exploring transitioning all employees to the UW academic employee premium model. Such a transition may require a carefully designed educational effort to make sure employees understand the sick days-ICI premium trade off.

Table 10: Inertia in Enrollment Decisions for Regular Employees

	Employees	Percent
Changed enrollment decision at least once	8,103	9.79
Never enrolled	30,130	36.41
Always enrolled	44,523	53.80
Total	82,756	100.00
Observations	82,756	

Source: ETF State ICI enrollment administrative data 2013–2018.

4 ICI Benefit Use

Finally, we turn to how people who enroll in ICI use that coverage. ICI has two types of benefits. One is a short-term benefit, defined as a year or less. The other is a long-term benefit that provides coverage for people out of work for longer than a year. The ICI short-term coverage is arguably the more unique feature of the program. Other forms of disability are designed for permanent conditions or issues that severely disrupt someone’s ability to work. For Wisconsin’s public employees, long-term coverage includes federal SSDI and state LTDI (or 40.63) coverage. However, there are few other sources of short-term disability coverage. We focus our analysis on how employees use ICI short-term coverage.

Our data are on a total of 30,045 claim-year observations filed by state or local employees for ICI and LTDI from 2011 through 2017. Of these, 10,605 are for short-term ICI disability claims. We have more detailed data on claim diagnosis types for 2015 to 2017. Table 11 shows the number of employee claims per year for short-term and long-term disability benefits. The claims data are not linked to enrollment data; these data are conditional on employees making one or more disability claims in each year.

Table 11: Summary Claims Data

Year	LTD	STD	Total
2011	2,254	1,672	3,926
2012	2,427	1,375	3,802
2013	2,618	1,331	3,949
2014	2,851	1,648	4,499
2015	3,018	1,576	4,594
2016	3,114	1,564	4,678
2017	3,158	1,439	4,597
Total	19,440	10,605	30,045

Source: ETF ICI claims administrative data 2011–2017.

Focusing on 4,793 short-term claims from 2015–2017, Table 4 shows how employees use the program. The average age of short-term ICI claimants is 43, with a wide range, as young as 19 and as old as 70. Claims are processed in about 41 calendar days, and the average beneficiary is on ICI short-term benefits for 96 days. The gross benefit is \$7,339, but only \$6,148 after offsets. These means are skewed by a few large payments. More than three-quarters of claims are from women, even though 54 percent of employees enrolled in ICI are women. Only 9 percent of those who claimed short-term ICI had ICI supplemental coverage. 17 percent of those who claimed short-term ICI also claimed long-term ICI (presumably after claiming short-term ICI), and 11 percent claimed LTDI.⁸

Table 12: Summary Statistics for Short-Term ICI Benefit Payments

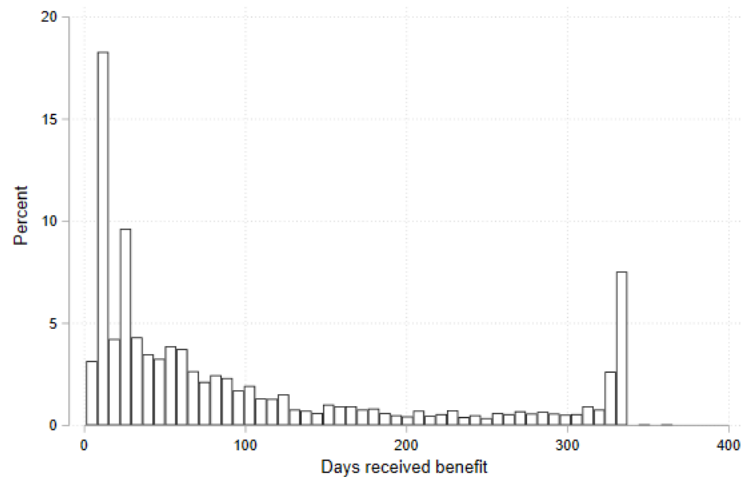
	Mean	StDev	Min	Max
Age at Claim (years)	43	(11.71)	19	70
Days in Claim Process	41	(30.92)	30	365
Days Received Benefit	96	(103.62)	1	454
Gross ICI Benefit (\$)	7,339	(8629.67)	42	91264
Actual Payment (\$)	6,148	(7136.69)	0	55358
Offsets (\$)	-1,015	(3455.36)	-57228	7901
Female	0.76	(0.43)		
Received Supplemental ICI	0.09	(0.29)		
Received LT ICI	0.17	(0.38)		
Received LTDI	0.11	(0.31)		
Observations	4793			

Source: ETF ICI claims administrative data from 2015–2017.

Figure 6 shows the distribution of the number of days employees were receiving ICI short-term benefits, where each bar is a week. More than a quarter of ICI benefits are less than four weeks in duration. Only a small share of ICI short-term benefits are provided for more than four months, with less than 10 percent provided for almost one year. In general, these benefits appear to be used as a transitional temporary benefit.

⁸Recall the maximum ICI monthly benefit is \$4,000 (as of 2020) or with supplemental coverage a maximum combined benefit of \$7,500 per month.

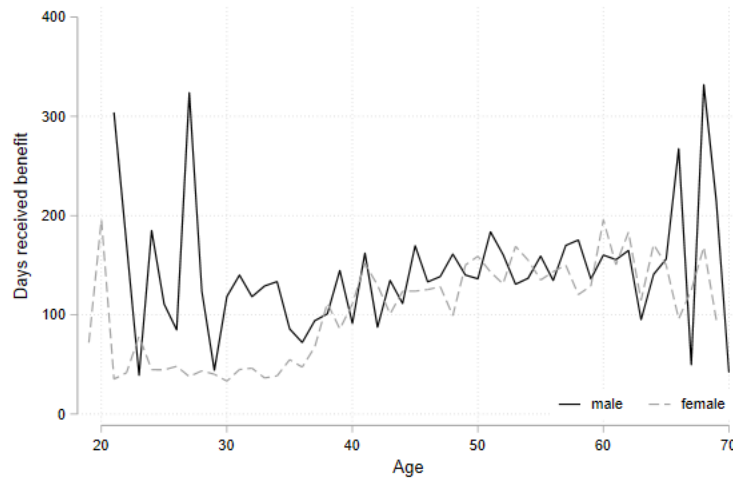
Figure 6: Short-term ICI Duration Distribution



Findings: A large portion of ICI short-term claims are paid for less than four weeks and less than 10 percent are paid for almost one year. *Source: ETF ICI claims administrative data 2015–2017.*

The enrollment data suggest women under 40 may have interest in ICI coverage, which could be due to maternal health and childbirth. Figure 7 shows the mean number of days of ICI short-term benefits by age and gender. Women under 40 tend to receive short-term ICI for less than 50 days, far less than men of the same age. After age 40, women tend to use ICI for about the same length of time as men. The general trend is the older the employee is when making a claim, the longer they stay on ICI short-term benefits.

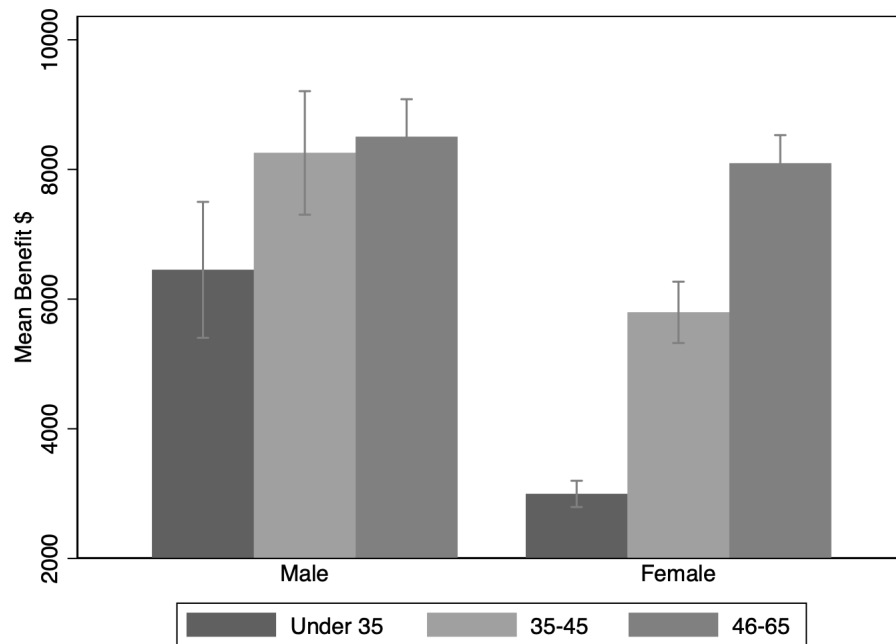
Figure 7: Short-term ICI Duration by Age and Gender



Findings: Among claimants age 40 or less, female claimants tend to receive ICI short-term benefits for a shorter period (generally than 50 days) compared to male claimants. At older ages, male and female claimants receive benefits for similar duration. Older claimants receive the benefits longer compared to their younger counterparts. *Source: ETF ICI claims administrative data 2015–2017.*

This gender difference by age also tracks the benefit amounts received under ICI short-term coverage, shown in Figure 8. Younger women are on ICI for a shorter period of time, and also receive lower benefit amounts. This is a combination of having less than a month of benefits, as well as having lower earnings. At older ages, men and women have more similar ICI short-term annual benefit amounts.

Figure 8: Short-term ICI Benefits by Age and Gender



Findings: Female claimants age 45 or less tend to receive smaller short-term ICI benefits compared to male claimants of the same age. At older ages, men and women have more similar ICI short-term annual benefit amounts. *Source: ETF ICI claims administrative data 2015–2017.*

Finally, we tabulate the duration of benefits by diagnosis, as shown in Table 13. The most common code is for pregnancy and childbirth, comprising nearly one-quarter of ICI short-term claims (1052 out of 4055 total). These claims are short in duration, at just under 23 days on average, compared to 77.5 days for all diagnosis codes overall. Very close in frequency are diseases of musculoskeletal system and connective tissue. These could include tendinitis, knee, hip and back problems and other conditions which could be treated and recover in a short period of disability away from work. The mean duration of benefits for this group of conditions is nearly 100 days on ICI. Mental disorders and injuries are the next most frequent conditions. Mental health issues have some of the longest duration of benefits for ICI at 126 days in duration on average.

Table 13: Number of Days of Short-Term ICI Benefits by Diagnosis Code

	Mean	StDev	Count
Congenital diseases	40.2	(22.5)	4
Diseases of the circulatory system	113.7	(96.1)	141
Diseases of the digestive system	62.5	(64.2)	95
Diseases of the eyes and ears	93.1	(93.3)	24
Diseases of the genitourinary system	39.3	(58.5)	115
Diseases of the musculoskeletal system and connective tissue	98.6	(81.1)	1125
Diseases of the nervous system	109.6	(90.1)	155
Diseases of the respiratory system	122.2	(101.7)	26
Diseases of the skin	83.4	(82.3)	21
Endocrine, nutritional and metabolic diseases	100.8	(68.8)	28
Factors influencing health status and contact with health services	26.3	(35.9)	94
Infectious diseases	73.7	(92.8)	9
Injury and poisoning	83.9	(67.8)	425
Mental, behavioral and neurodevelopmental disorders	126.4	(95.1)	431
Neoplasms and blood diseases	108.3	(87.2)	228
Not elsewhere classified	94.1	(90.0)	82
Pregnancy, childbirth and the perinatal	22.9	(25.6)	1052
Total	77.5	(80.6)	4055
<i>N</i>	4055		

Source: *ETF ICI claims administrative data 2015–2017.*

5 ICI and Long Term Disability Benefits

While workers may use short-term ICI to manage a health condition for a year or less, some workers who use ICI may need to transition to long-term disability coverage. We next turn to 32,564 total claim-years, including 12,058 short-term ICI claim-years and 20,506 long-term claim-years from 2011–2017. Compared to short-term ICI claims in Table 4 for the same 2015–2017 time period, Table 14 shows these long-term disability claims are at older, at age 51 compared to age 43 for short-term ICI. Annual benefits are much higher too. Note that offsets are quite large, reducing gross payments by more than one-third. It is likely a significant portion of these offsets is due to programs such as SSDI. For older workers, ICI and long-term benefits may serve as bridge to retirement benefits (Wagner et al., 2000).

Table 14: Long-Term Claims for ICI

	Mean	StDev	Min	Max
Age at Claim (years)	51	(10.78)	19	80
Days in Claim Process	162	(183.21)	0	1221
Gross ICI Benefit (\$)	24,274	(17542.13)	0	153199
Actual Payment (\$)	14,774	(9596.56)	0	73817
Offsets (\$)	-8,632	(13403.40)	-103264	12750
Observations	16388			

Source: *ETF ICI claims administrative data 2015–2017.*

We next model the hazard of an employee filing a long-term claim after claiming a short-term ICI benefit after 2011 through 2017. All of the employees in the sample claim some disability benefit at some point. We have 11,514 unique employees, with each employee making nearly three disability claims of any type per employee. We use this repeated claim behavior to estimate if employees who claim a short-term claim are likely make a later long-term disability claim. Table 15 shows these estimates. It appears people who use short-term ICI are less likely to use long-term disability subsequently. Rather than a transition from short-term to long-term, people appear to enter directly into long-term disability. Short-term ICI use is more episodic in nature.

However, much of the short-term ICI use is among younger employees and women—perhaps driven by the pregnancy-related claims for short-term ICI. Older populations who claim short-term ICI are more likely to go on to use long-term disability. Even short-term ICI use by high-risk positions such as protective services do not show higher use of long term disability after using short-term ICI. Overall, this highlights the heterogeneity in ICI short term use—from women using a few weeks for childbirth—to older workers dealing with chronic health or mental health issues who are likely to end up in long-term disability.

Table 15: Relative Hazard of Claiming Long-Term Disability After Claiming Short-Term ICI

	Claim LTD	Claim LTD	Claim LTD	Claim LTD
ICI Short Term	-2.813***			
	(0.031)			
35-45	0.652***	-0.017		
	(0.066)	(0.043)		
46-55	0.707***	-0.023		
	(0.066)	(0.041)		
56-65	0.747***	0.014		
	(0.066)	(0.041)		
Female	-0.018	-0.006		-0.021*
	(0.012)	(0.011)		(0.011)
Protective Emp	-0.133***	-0.124**	-0.150***	
	(0.049)	(0.049)	(0.052)	
ICI Short Term=1		-4.646***	-2.573***	-2.864***
		(0.109)	(0.043)	(0.029)
ICI Short Term=1 × 35-45		1.466***		
		(0.125)		
ICI Short Term=1 × 46-55		2.048***		
		(0.117)		
ICI Short Term=1 × 56-65		2.278***		
		(0.117)		
Age group			0.094***	0.102***
			(0.008)	(0.008)
Female			0.012	
			(0.011)	
ICI Short Term=1 × Female			-0.492***	
			(0.054)	
Protective Emp=1				0.057
				(0.046)
ICI Short Term=1 × Protective Emp=1				-0.821***
				(0.134)
Observations	31,558	31,558	31,558	31,558
Unique Employees	11,306	11,306	11,306	11,306

Notes: 2011-2017 claims for disability. Hazard Ratio for claiming long-term disability in each year. Excluding LTD claims prior to short-term claims. Death as censoring event. Source: ETF ICI claims administrative data 2011-2017.

Taking a different approach, we use a sample of employees who claim short-term ICI in 2011 and then use variation in the intensity of that short-term claim in a regression framework to estimate the future use of long-term disability benefits. Table 16 shows these estimates.⁹ The main finding is that people who use longer or more short-term ICI benefits are slightly more likely to use long-term disability subsequently. People who make short-term claims for

⁹In the data we observe claimants who transitioned to ICI-LTD or LTDI. Claimants who continuously worked for WRS employer since before LTDI was introduced have the option of choosing 40.63 disability benefits over LTDI. 40.63 claims are not observed in the data. To address this, we run similar regressions and exclude workers who may be eligible for 40.63 benefits. These estimates are shown in Table 22 in the appendix.

mental disorders are more likely to use long-term benefits, and those who use short-term ICI for pregnancy/childbirth are less likely, as are women. While the effects are small, short-term ICI claims that take longer to approve are also more likely to use long-term ICI.

Table 16: Conditional on Short-term ICI Claims, Subsequent Long-Term Disability Use

	(1)	(2)	(3)	(4)	(5)
	LTD	LTD	LTD	LTD	LTD
Gender					
Female	-0.040**	-0.031**	-0.017	-0.035**	-0.038**
	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)
Employment category					
Educational	0.130*	0.121*	0.013	0.126*	0.128*
	(0.073)	(0.072)	(0.060)	(0.072)	(0.073)
Protective	-0.027	-0.009	-0.034*	-0.019	-0.025
	(0.019)	(0.019)	(0.019)	(0.019)	(0.019)
Others	0.291	0.249	0.148	0.255	0.257
	(0.260)	(0.272)	(0.265)	(0.266)	(0.268)
Diagnosis category					
Mental disorders	0.039*	0.053**	0.037*	0.024	0.030
	(0.022)	(0.022)	(0.021)	(0.022)	(0.023)
Injury	-0.020	-0.005	-0.023	-0.011	-0.014
	(0.016)	(0.016)	(0.015)	(0.015)	(0.016)
Neoplasms and blood diseases	0.039	0.046	0.009	0.040	0.040
	(0.028)	(0.029)	(0.029)	(0.028)	(0.028)
Nervous system diseases	0.083**	0.089**	0.046	0.081**	0.085**
	(0.039)	(0.039)	(0.035)	(0.039)	(0.039)
Others	0.013	0.027*	0.016	0.032**	0.022
	(0.016)	(0.016)	(0.015)	(0.016)	(0.017)
Age category					
35-44		0.004			
		(0.012)			
45-54		0.053***			
		(0.015)			
More than 54		0.102***			
		(0.019)			
STD benefits					
Duration between disability and first payment (days)			0.002***		
			(0.000)		
Duration of STD benefit (months)				0.011***	
				(0.002)	
Benefit amount (thousands)					0.002***
					(0.001)
Has supplemental coverage	-0.013	-0.023	-0.034*	-0.016	-0.034
	(0.021)	(0.021)	(0.019)	(0.021)	(0.022)
Constant	0.075***	0.013	-0.024	0.011	0.047***
	(0.015)	(0.018)	(0.020)	(0.015)	(0.016)
Observations	1,397	1,397	1,397	1,397	1,397
R^2	0.03	0.05	0.11	0.06	0.04

Source: ETF ICI claims administrative data 2015–2017.

Both of these sets of results are preliminary, since we lack data on the full employee population at risk. Data that comprehensively captures the use of both short and long-term ICI,

as well as those who never enrolled in or enrolled but never use either benefit, will provide a more robust analysis of how these programs operate.

6 Employment Trajectories: ICI Maternity Benefits

State and local employers offer paid maternity leave benefits through ICI. The Wisconsin Family and Medical Leave Act (FMLA) entitles employees to six weeks of *unpaid* leave if they work for companies with 50 employees or more, have been employed for prior 52 weeks, and worked at least 1,000 hours during that period. There are no paid benefits for maternity in the state, other than for women who are laid off during pregnancy and eligible for unemployment benefits during their pregnancy as long as they are able to work, however they will not be eligible once hospitalized or otherwise unable to work. The ICI program has standardized benefit durations for pregnancy ranging from 6 weeks for a vaginal delivery to 8 weeks for a cesarean delivery, but ICI benefits are paid longer if complications occur before or after delivery.

Paid maternity leave may affect future employment and earnings for women. Rossin-Slater (2017) surveyed the literature on paid maternity leave concluding that short-term paid maternity leave increases job continuity immediately following pregnancy and employment after taking maternity leave. For example, paid leave programs in California are associated with higher probability of employment in the first year after childbirth (Baum and Ruhm, 2016). However, these policies have heterogeneous effects on employment. Women are more likely to remain working with their previous employer in the short-run, especially lower-skilled women (Byker, 2016). Other studies show that paid maternity leave increases the rate of young women not working (Das and Polachek, 2015). Another set of studies examined the effects of paid leave on time spent at work and earnings following pregnancy. Rossin-Slater et al. (2013) found that paid maternity leave increases weekly hours worked and earnings substantially for women in the first three years of their child's life. Baum and Ruhm (2016) found that maternity benefits increased weeks working in the second year following childbirth.

Using ETF administrative data for the short term ICI program from 2011-2018, we examine the earnings trajectories leading up to application for women who claim short-term ICI for pregnancy. We employ a panel event study approach to examine the relationship between short term ICI claim timing and earnings.

We limit our analysis sample to 870 women who claim short term ICI for pregnancy between 2015 and 2018, as in the prior analysis. Table 18 details the descriptive characteristics for these claimants in the year that they file their benefit application and earnings and creditable service from the earliest period observed. Women who file a claim are 32 years old on average. They spend an average of 59 days with a disability including 33 days in the ICI claims process and 27 days receiving the ICI benefit. Claimants earn an average of \$40,226 and 0.62 years of service annually.¹⁰ Average monthly ICI payments are \$2,655 including \$2,743 in gross

¹⁰For state employees, one year of creditable service is based on hours worked, for teachers 1,320 hours and for all other employees 1,904 hours.

benefits and -\$23 in benefit offsets. 10 percent of claimants claim supplement ICI coverage, which offers greater benefits for employees who earn salaries between \$64,000 to \$120,000.

Table 18: Means for Short-Term ICI Maternity Claimants

	Mean	SD	Min	Max
Age at Claim	32	(4.28)	20	47
Calendar Year Earnings (\$)	40,226	(34,773.24)	875	164,491
Calendar Year Service (in years)	0.62	(0.36)	0.02	1.60
Days with a Disability	59	(35.95)	33	362
Days in Claim Process	33	(6.99)	30	105
Days Received Benefit	27	(34.82)	1	332
Gross ICI Benefit (\$)	2,743	(3,674.82)	83	49,468
Actual Payment (\$)	2,655	(3,520.95)	12	47,357
Offsets (\$)	-23	(362.79)	-6,974	938
Received Supplemental ICI	0.10	-	0	1
Observations	870			

Notes. Data from 2015-2018 ETF Short-Term ICI claims administrative data and 2011-2018 ETF earnings administrative data.

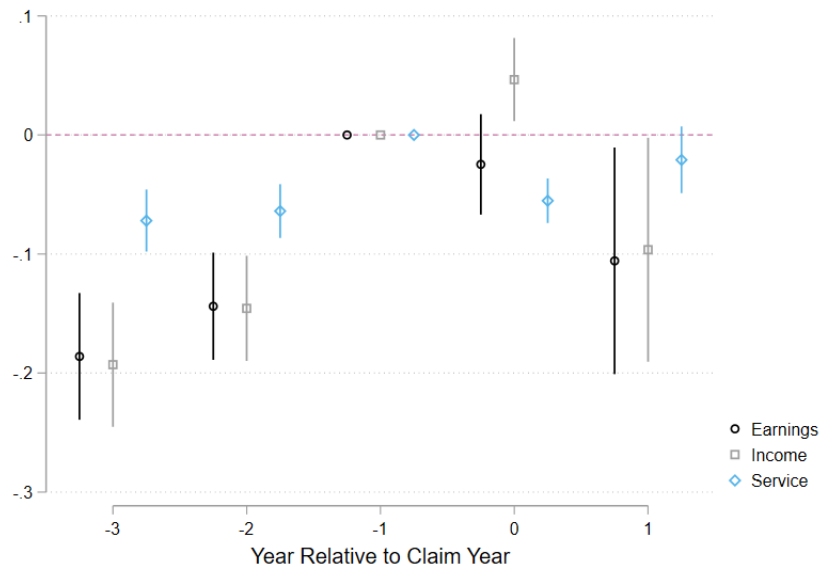
Figure 9 shows that women who participate in this program experience lower earnings in the year that they file their claim. However, these employees have higher income in the year that they file their claim, as the ICI benefits paid supplement lower earnings while they are unable to work. Table 19 details the estimates for claim timing shown in these estimates. Prior to application, claimant earnings are significantly lower than one year prior to application, however, there is a positive gradient. Three years prior to application earnings are 18.6 percent lower than one year before application while two years prior to application earnings are 14.4 percent lower. The estimates two and three years prior to claim are not statistically different from each other. Claimant earnings are 2.5 percent lower in the year that they file relative to one year prior to their claim. The estimate is also not statistically significant.

Claimant incomes, which include both wage earnings and ICI benefits, are 4.6 percent higher in the year that the claim is filed and statistically significant at the 5 percent level. Applicants earn 0.055 fewer years of creditable service in the claim year. This estimate translates to 105 fewer hours worked for general employees than one year prior to claiming. As most claimants exit from the program in the year following their claim, they experience a decline in earnings, income, and service relative to the year prior to their short term ICI claim. Claimant earnings and incomes decline by 10.6 percent and 9.6 percent respectively, both estimates are significant at the 10 percent level. Creditable service is 0.021 lower in the year following short term ICI claim, however this estimate is not statistically different from zero.

Although women work fewer hours one year after claim compared to one year before, the estimate suggests that their reduction in hours worked is 62 percent smaller than during the claim year. These results reveal that short-term ICI benefits significantly increase income in the year that the claimant becomes pregnant allowing women to work significantly fewer hours without negatively affecting financial well-being. Although earnings and income are significantly lower in the year following pregnancy, there is evidence that women are returning to work hours not significantly different from one year before their claim.

We also examine the heterogeneity in the relationship between claim timing and employment outcomes by earnings and claiming age. Table 20 details the estimates broken out into two

Figure 9: Event Study of Claim Timing on Calendar Year Earnings, Income, and Service



Findings: Short term ICI benefits significantly increase income by 4.6 percent in the claim year allowing women to work significantly fewer hours without negatively affecting financial well-being. Although earnings and income are significantly lower in the year following pregnancy, 10.6 percent and 9.6 percent respectively, there is evidence that women are returning to work hours not significantly different from one year before their claim. *Notes. Data from 2015-2018 ETF Short-Term ICI claims administrative data and 2011-2018 ETF earnings administrative data. 90 percent confidence intervals displayed. Standard errors clustered at individual level.*

Table 19: Claim Timing on Calendar Year Earnings, Income, and Service

	(1) Earnings (IHS)	(2) Income (IHS)	(3) Service
Three Years Before Claim	-0.186 *** (0.032)	-0.193 *** (0.032)	-0.072 *** (0.016)
Two Years Before Claim	-0.144 *** (0.027)	-0.146 *** (0.027)	-0.064 *** (0.014)
Claim Year	-0.025 (0.026)	0.046 * (0.021)	-0.055 *** (0.011)
One Year After Claim	-0.106 + (0.058)	-0.096 + (0.057)	-0.021 (0.017)
Mean	11.290	11.318	0.915
Individuals	863		
Observations	3347		
R^2	0.013	0.023	0.014

Notes. Data from 2015-2018 ETF Short-Term ICI claims administrative data and 2011-2018 ETF earnings administrative data. Standard errors are clustered at the individual level. Reference period is $t=-1$, one year prior to claim year. Individual fixed effects included. Calendar year earnings and income are measured in inverse hyperbolic sine (IHS) 2018 dollars.

groups, below median earnings and median earnings and above. Median calendar year earnings in our sample are \$43,156. Estimates for the years prior to short term ICI claim show that earnings, income, and service are significantly lower than one year prior to application.

In line with the main results, estimates on earnings and income have a positive gradient from three years prior to two years prior to application, regardless of income group. However, estimates on years of service reveal a negative relationship for employees with median earnings and above while employees with below median earnings exhibit a positive gradient in service from three years prior to two years prior to application. Employees with median and above earnings are reducing their hours worked at an increasing rate.

In the claim year, earnings are 11 percent lower for those with below median earnings and 5.2 percent higher for employees who earn more, both statistically significant at the 5 percent level. While those with below median earnings do not experience a significant change in income in the claim year, higher earning workers experience a 8.7 percent increase in income, significant at the 0.1 percent level. Higher earning employees' service is not significantly decreased while lower earning employees' service falls significantly by 0.097 years, a reduction of 185 hours for general employees. In the year following the ICI claim, employees with below median earnings experience a 24.8 percent decrease in earnings and 22.1 percent decrease income. Higher earning employees experience small and statistically insignificant changes in earnings and income in the year following their claim. Service in the year after pregnancy is not significantly different than one year prior to application, regardless of earnings.

These results suggest that women with below median earnings are working less without significantly offsetting their losses in earnings with benefits in the year that they claim short term ICI. These reductions in earnings and income relative to one year before application persist into the year following application. On the other hand, higher earning employees experience significant improvements in financial well-being in the claim year whether measured by earnings or income without reducing their hours worked relative to one year before their claim. Higher earners appear to return to earning and working hours that are not significantly different from one year before the claim.

Table 20: Claim Timing on Calendar Year Earnings, Income, and Service by Earnings

	Earnings (IHS)		Income (IHS)		Service	
	Below Median	Median and Above	Below Median	Median and Above	Below Median	Median and Above
Three Years Before Claim	-0.196 *** (0.057)	-0.172 *** (0.037)	-0.217 *** (0.055)	-0.170 *** (0.037)	-0.078 ** (0.028)	-0.065 *** (0.018)
Two Years Before Claim	-0.124 ** (0.046)	-0.155 *** (0.033)	-0.137 ** (0.044)	-0.149 *** (0.033)	-0.051 * (0.023)	-0.073 *** (0.017)
Claim Year	-0.110 * (0.047)	0.052 * (0.024)	0.000 (0.036)	0.087 *** (0.024)	-0.097 *** (0.019)	-0.017 (0.013)
One Year After Claim	-0.248 * (0.122)	0.006 (0.038)	-0.221 + (0.121)	0.002 (0.038)	-0.030 (0.029)	-0.013 (0.020)
Mean	10.896	11.632	10.939	11.647	0.860	0.963
Individuals	428	435	428	435	428	435
Observations	1557	1790	1557	1790	1557	1790
R ²	0.011	0.049	0.017	0.058	0.021	0.020

Notes. Data from 2015-2018 ETF Short-Term ICI claims administrative data and 2011-2018 ETF earnings administrative data. Standard errors are clustered at the individual level. Reference period is $t=-1$, one year prior to claim year. Individual fixed effects included. Calendar year earnings and income are measured in inverse hyperbolic sine (IHS) 2018 dollars. Median earnings is \$43,156.

Table 21 details the estimates broken out into two age groups, below median age and median

age and above. Median age at claim in our sample is 32 years old. In the years leading up to short term ICI claim, earnings and income are significantly lower than one year before application and exhibit a positive gradient from three years before to two years before claim, regardless of age group. While service is also significantly lower two and three years before application, younger workers exhibit a positive gradient in hours worked, -0.086 and -0.062 respectively, while older workers have equal declines in service, -0.069 years. In the claim year, older workers experience a significant 8.6 percent decline in earnings and a 0.093 reduction in service relative to one year before application. The decline in income is not offset by ICI benefits demonstrated by a small and statistically insignificant decline in income of 0.8 percent.

Younger worker earnings and service are not significantly different in the claim year relative to one year before application. Their income increases by 11.2 percent relative to one year prior, statistically significant at the 0.1 percent level. Younger workers experience improved financial well-being in the year that they have a child. Older workers earnings losses are offset by ICI benefits with income unchanged despite reducing their hours worked by about 177 hours relative to one year prior. In the year following the ICI claim, older workers declines in earnings and service persist with a 21.2 percent decrease in earnings and 0.062 years reduction in service relative to one year before application, significant at the 5 percent and 1 percent levels respectively. They also experience a significant 22.1 percent decline in income as ICI benefits that offset loss in earnings are exhausted. Younger worker earnings, income, and service are not statistically different from one year before application in the year following their claim.

These results reveal that younger and older workers differ in the relationship between claim timing and employment outcomes. While younger workers appear to supplement their income in the year that they become pregnant without a significant drop in service in the year of the claim and one year post-claim. Older workers differ substantially in their employment outcomes when they claim short term ICI. Older workers are protected from a decline in earnings resulting from significantly reducing hours worked in the claim year. The offsetting effect of ICI benefits experienced in the claim year disappears in the year after as they continue to earn less and work fewer hours than one year prior to application.

State employees in Wisconsin who receive paid maternity leave through the short term ICI program are able to insure against earnings losses in the year of pregnancy, especially for employees with lower earnings and older workers. However, in the first year following their claim, women experience a significant decline in earnings and income relative to one year before pregnancy as benefits are exhausted and they return to work. Women return to work similar hours in the year following their claim, but older mothers reduce hours worked for at least one year after their claim. These findings support prior studies which have found evidence that short-term paid maternity leave improves economic well-being for women at least during the period of late pregnancy and delivery, as well as that of infant caregiving.

Table 21: Claim Timing on Calendar Year Earnings, Income, and Service by Claiming Age

	Earnings (IHS)		Income (IHS)		Service	
	Below Median	Median and Above	Below Median	Median and Above	Below Median	Median and Above
Three Years Before Claim	-0.223 *** (0.051)	-0.172 *** (0.041)	-0.225 *** (0.051)	-0.183 *** (0.040)	-0.086 ** (0.027)	-0.069 *** (0.019)
Two Years Before Claim	-0.182 *** (0.049)	-0.125 *** (0.031)	-0.179 *** (0.049)	-0.130 *** (0.030)	-0.062 ** (0.023)	-0.069 *** (0.017)
Claim Year	0.049 (0.035)	-0.086 * (0.037)	0.112 *** (0.033)	-0.008 (0.027)	-0.010 (0.018)	-0.093 *** (0.014)
One Year After Claim	0.034 (0.058)	-0.212 * (0.091)	0.053 (0.054)	-0.211 * (0.091)	0.032 (0.026)	-0.062 ** (0.022)
Mean	11.201	11.359	11.226	11.388	0.882	0.941
Individuals	396	467	396	467	396	467
Observations	1458	1889	1458	1889	1458	1889
R ²	0.040	0.011	0.059	0.018	0.023	0.023

Notes. Data from 2015-2018 ETF Short-Term ICI claims administrative data and 2011-2018 ETF earnings administrative data. Standard errors are clustered at the individual level. Reference period is $t=-1$, one year prior to claim year. Individual fixed effects included. Calendar year earnings and income are measured in inverse hyperbolic sine (IHS) 2018 dollars. Median age at maternity claim is 32 years old.

7 Discussion

This study uses Wisconsin ETF data to describe how employees in state and local government use an employer provided short-term disability program. Employees more at risk of needing short-term benefits, including younger women and older people of any gender, are more likely to enroll, at least before retirement ages. Employees are sensitive to out-of-pocket premiums, and as employees have higher incomes, enrollment is higher.

Among employees who enroll and have a choice about their elimination period (which serves like a deductible), many end up in policies that offer coverage they are unlikely to use given their sick leave balance. These employees are potentially over-insured, or paying extra premiums they may not value. This may point to a need for more education to employees about how coverage operates with sick leave balances.

Finally, we examine how employees use ICI short and long-term benefits. Short-term benefits tend to be used at younger ages, and range from a few weeks, often for pregnancy and childbirth, to over four months. Long-term coverage tends to be claimed at older ages, with significant offsets, presumably from other programs such as SSDI. The use of short-term benefits appears to be especially supportive of the financial well-being of employees on maternity leave, filling in for lost earnings and allowing women to return to work in the year after childbirth.

This data and these results suggest a number of potential future studies. First, ICI enrollment can be matched to monthly claims in order to estimate which employees sign up for ICI and then how likely they are to use benefits, highlighting any adverse selection, especially given the number of premium changes in the program over the study period. Second, the importance of short-term disability supports for worker persistence may be important to understand, especially how access to worker re-training, accommodations and occupational

therapy may accelerate a return to work sooner, and reduce the use of short- and long-term disability benefits. A third potential research area is how well workers understand their disability benefits, premiums and exclusion periods. Employee enrollment appears quite 'sticky' over time, but to the extent ETF makes changes in the program design, there may be opportunities to study responses to differences in how agencies communicate program details and how this may affect employee enrollment. Another potentially important area to study is supports that are combined with disability benefits including health care and the value of healthcare coverage. These may provide incentives to stay on employer-sponsored benefits relative to SSDI and Medicare. Yet another potential area of future research is how protective workers, who have access to enhanced benefits, use these programs, and how this relates to a return to work or transitions to retirement. Finally, the incidence of short and long-term disability may also have longer-run negative impacts on how people are able to accumulate retirement assets. Linking data on disability claims and retirement may provide better evidence of how much optional coverage like ICI helps people with disabilities in their prime working years can support financial well-being later in life.

Overall, these data provided by ETF provide a unique and important view into how employees navigate employer-provided disability benefits. Given concerns about employee's ability to manage health care, sick leave and family caregiving that have been highlighted in the COVID-19 pandemic, programs like the ICI coverage may have even more significance for the financial well-being of workers.

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Appendix

Table 22: Conditional on Short-term ICI Claims, Subsequent Long-Term Disability Use (Exclude 40.63-eligible Claimants)

	(1) LTD	(2) LTD	(3) LTD	(4) LTD	(5) LTD
Gender					
Female	-0.046*** (0.016)	-0.036** (0.016)	-0.021 (0.016)	-0.041*** (0.016)	-0.044*** (0.016)
Employment category					
Educational	0.148* (0.079)	0.138* (0.077)	0.026 (0.061)	0.140* (0.079)	0.143* (0.080)
Protective	-0.045*** (0.017)	-0.026 (0.017)	-0.056*** (0.017)	-0.036** (0.017)	-0.043** (0.018)
Others	0.920*** (0.022)	0.899*** (0.026)	0.753*** (0.036)	0.897*** (0.023)	0.901*** (0.023)
Diagnosis category					
Mental disorders	0.048** (0.024)	0.065*** (0.024)	0.045* (0.023)	0.034 (0.024)	0.037 (0.025)
Injury	-0.011 (0.016)	0.004 (0.016)	-0.014 (0.016)	-0.003 (0.016)	-0.005 (0.016)
Neoplasms and blood diseases	0.043 (0.031)	0.051 (0.032)	0.017 (0.031)	0.045 (0.030)	0.045 (0.030)
Nervous system diseases	0.095** (0.045)	0.103** (0.044)	0.055 (0.040)	0.092** (0.043)	0.097** (0.044)
Others	0.018 (0.017)	0.035** (0.018)	0.022 (0.016)	0.039** (0.018)	0.030* (0.018)
Age category					
35-44		0.004 (0.012)			
45-54		0.059*** (0.016)			
More than 54		0.114*** (0.021)			
STD benefits					
Duration between disability and first payment (days)			0.002*** (0.000)		
Duration of STD benefit (months)				0.012*** (0.002)	
Benefit amount (thousands)					0.003*** (0.001)
Has supplemental coverage	-0.008 (0.023)	-0.020 (0.023)	-0.036* (0.021)	-0.010 (0.023)	-0.032 (0.024)
Constant	0.078*** (0.016)	0.012 (0.019)	-0.030 (0.021)	0.014 (0.016)	0.045*** (0.017)
Observations	1,246	1,246	1,246	1,246	1,246
R ²	0.04	0.08	0.14	0.07	0.06

Notes: Standard errors are clustered at the employee level. Source: ETF ICI claims administrative data from 2011–2018.



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