

Table 1. Description of Variables Used for the Analysis

Variable	Description
Spell Length Variables	
Disability	A health condition or impairment that limits the kind or amount of paid work that can be performed. The health condition or impairment is expected to last at least 3 months.
Disability (Bother)	The year the disability first began to bother the person.
Disability (Interfere)	The year the disability first began to interfere with the person's work.
Apply	Value equals 1 if the person applied for SSDI benefits; 0 otherwise.
Censor	Value equals 1 if the person had not applied for benefits; 0 otherwise.
Condition Bother Duration	The year of first application for SSDI minus the year the disability first began to bother the person.
Condition Limit Duration	The year of first application for SSDI minus the year the disability first began to interfere with the person's work.
Policy Variables	
State Allowance Rate	Persons who are awarded SSDI benefits divided by persons who apply for SSDI benefits in each state and for each year from 1974 through 1993.
Expected SSDI Benefit Amount	Primary Insurance Amount multiplied by 12.
Employer Accommodation	Value equals 1 if the employer did anything special to help the person out so that the person could stay at work; 0 otherwise.
Economic Variables	
Expected Earnings	Annual measure of expected labor earnings in the years following the application decision year.
State Unemployment Rate	Unemployment rate for each state and for each year from 1974 through 1993.
Spouse Work at Onset	Value equals 1 if the spouse was working at onset; 0 otherwise.
Savings at Onset	Value equals 1 if the person had no savings at onset; 0 otherwise.
Experience	The person's number of quarters of Social Security coverage at onset.

Table 1 (Cont'd). Description of Variables Used for the Analysis

Variable	Description
	Economic Variables
Tenure Missing	Value equals 1 if the person did not have information on tenure; 0 otherwise.
Tenure	Years of work with employer at the onset of a disability.
Job Requirements	Value equals 1 if the job required one of the requirements listed below; 0 otherwise. Requirements included: A lot of physical effort; lifting heavy objects; stooping, kneeling or crouching; good eyesight; intense concentration; keeping up with a pace set by others; and skill dealing with people. The first three categories mentioned are joined to form a composite measure and good eyesight and intense concentration are joined to form another measure.
All of the time	Value equals 1 for each of the job requirements if required all of the time; 0 assigned for most, some or none of the time.
Most of the time	Value equals 1 for each of the job requirements if required all of the time or most of the time; 0 assigned some or none of the time.
Occupation	Value equals 1 for each of the set of occupations at onset; 0 otherwise. Occupations include: Manager; Professional; Sales; Clerical; Service; Craftsperson; Laborer; Military; miscellaneous; occupation missing.
White Collar	Value equals 1 if person's occupation is Manager or Professional; 0 otherwise.
Industry	Value equals 1 for each of the set of industries at onset; 0 otherwise. Industries include: Agriculture; Mining; Manufacturing; Transportation; Retail, Wholesale, Finance; Service; Professional Service; Public Administration; industry missing.
Employer Size	Value equals 1 for the set of employer size values at onset; 0 otherwise. Employer sizes include: less than 5 employees; 5 – 14 employees; 15 - 24 employees; 25 -99 employees; 100 – 499 employees; 500 or more employees; number of employees missing.
Decide Pay	Value equals 1 if the person decides the pay of other employees; 0 otherwise.

Table 1 (Cont'd). Description of Variables Used for the Analysis

Variable	Description
	Economic Variables
Pension	Value equals 1 if the person has a pension plan with the onset employer; 0 otherwise.
Pension missing	Value equals 1 if pension information is missing; 0 otherwise.
Union	Value equals 1 if the person is a member of a union at onset; 0 otherwise.
Union missing	Value equals 1 if union information is missing; 0 otherwise.
Disability Caused By Work	Value equals 1 if the disability was in any way caused by the nature of the person's work; 0 otherwise.
Disability Result of Accident at Work	Value equals 1 if the disability was a result of an accident that occurred at work; 0 otherwise.
Veteran	Value equals 1 if the person served in the military; 0 otherwise.
	Health Variables^a
Two Conditions	Value equals 1 if person has two health conditions at onset; 0 otherwise.
Three Conditions	Value equals 1 if person has three or more health conditions at onset; 0 otherwise.
First Mention	Value equals 1 if the health condition used was based on the first condition mentioned by the respondent; 0 otherwise.
Any Mention	Value equals 1 if the health condition used was based on all possible reports; 0 otherwise.
Cancer	Value equals 1 if the condition was in one of the following categories; 0 otherwise. <ul style="list-style-type: none">• Cancer; leukemia; Hodgkin's disease; melanomas; malignant tumors.• Other Tumors, cysts or growths; "polyps"• Skin conditions; dermatitis; eczema; "rashes"; Paget's disease
Musculoskeletal	Value equals 1 if the condition was in one of the following categories; 0 otherwise. <ul style="list-style-type: none">• Arthritis; rheumatism; bursitis.• Back/Neck/Spine problems; chronic stiffness, deformity or pain; disc problems; scoliosis; spinal bifida; "bad back"• Stiffness, deformity, numbness or chronic pain in foot, leg, arm or hand; "bad knee"; hip problems; hip replacement.• Hernias; hiatal hernia.• Muscular dystrophy.• Other musculoskeletal or connective tissue problems; lupus; osteoporosis; pinched nerve; carpal tunnel syndrome; fibrocitis.

Table 1 (Cont'd). Description of Variables Used for the Analysis

Variable	Description
	Health Variables
Paralysis	Value equals 1 if the condition was in one of the following categories; 0 otherwise. <ul style="list-style-type: none">• Missing legs, feet, arms, hands, or fingers.• Paralysis—any mention, including from Polio.
Cardiovascular	Value equals 1 if the condition was in one of the following categories; 0 otherwise. <ul style="list-style-type: none">• Heart problems: heart attack (coronary) or failure; arteriosclerosis; aneurysms; heart deformities; angina; "bad heart"; congestive heart disease.• High blood pressure (hypertension).• Stroke; cerebral hemorrhage or accident.• Blood disorders: anemia; hemophilia; polycythemia; "badblood"; toxemia.• Other circulatory problems; phlebitis, clots, embolisms; varicose veins; hemorrhoids; low blood pressure.
Respiratory	Value equals 1 if the condition was in one of the following categories; 0 otherwise. <ul style="list-style-type: none">• Allergies; hayfever; sinusitis; tonsillitis.• Asthma.• Bronchitis; pneumonia; "acute upper respiratory problems".• Emphysema.• Other respiratory problems; tuberculosis.
Endocrine	Value equals 1 if the condition was in one of the following categories; 0 otherwise. <ul style="list-style-type: none">• Diabetes.• Thyroid trouble; goiter.• Cystic fibrosis.• Nutritional problems; weight problems; eating disorders; high cholesterol.• Other endocrine/metabolic problems; pancreatitis; pituitary problems; Addison's disease.
Digestive	Value equals 1 if the condition was in one of the following categories; 0 otherwise. <ul style="list-style-type: none">• Stomach and intestinal conditions: ulcers; colitis; gastritis; diverticulosis; appendicitis; Chron's disease; "stomach pains"• Liver conditions: cirrhosis; hepatitis• Kidney conditions: kidney stones; kidney failure (including dialysis).• Gallbladder conditions• Bladder conditions; urinary infections• Urinary incontinence; urinary loss/leakage; problems with bladder control• Other digestive system problems

*Combined with Endocrine Health Conditions

Table 1 (Cont'd). Description of Variables Used for the Analysis

Variable	Description
	Health Variables
Nuerological	<p>Value equals 1 if the condition was in one of the following categories; 0 otherwise.</p> <ul style="list-style-type: none">• Blindness or vision problems: glaucoma; cataracts; detached retina• Deafness, hearing loss or other ear conditions• Multiple sclerosis; cerebral palsy; epilepsy; Parkinson's; ALS; "seizures"; neuropathy• Speech conditions—any mention: congenital speech defects; stuttering.• Mental retardation; learning disabilities; Down syndrome• Other neurological/sensory problems; sciatica; "headaches"; "dizziness"; "blackouts"; "brain damage"—NFS; meningitis; "memory loss"
Reproductive	<p>Value equals 1 if the condition was in one of the following categories; 0 otherwise.</p> <ul style="list-style-type: none">• Pregnancy and childbirth problems; miscarriage; stillbirth; RH factor• Infertility; sterilization; vasectomy; tubal ligation• Prostate conditions• Other problems of reproductive system; hysterectomy; ovarian problems; PMS; menopause <p>*Only 2 Cases-This Category is in Miscellaneous</p>
Emotional	<p>Value equals 1 if the condition was in one of the following categories; 0 otherwise.</p> <ul style="list-style-type: none">• Alcoholism• Drug abuse, addiction• Other severe psychological conditions: (chronic) depression; schizophrenia; mania; paranoia; autism; psychosis• Other emotional and psychological problems; "mental problems"; "nerves"; "nervous breakdown"
Miscellaneous	<p>Value equals 1 if the condition was in one of the following categories; 0 otherwise.</p> <ul style="list-style-type: none">• Alzheimer's disease; "senility"• Dental and gum conditions—any mention• Acute infectious diseases; flu, colds, fever, mumps, etc.• Injuries and traumas: broken bones; pulled muscles; strains; tendon damage; burns, lacerations; concussion; side effects/conditions due to surgery.• Sleep disorders; sleep apnea; narcolepsy• Immune system disorders; HIV positive; AIDS; ARC• Old age; "everything wore out"• Lack of energy/strength; (chronic) fatigue—n.e.c.• Other health condition

Table 1 (Cont'd). Description of Variables Used for the Analysis

Variable	Description
Demographic Variables	
Education	Years of education attained.
Age	Age at onset.
Married at Onset	Value equals 1 if married at onset; 0 otherwise.
White	Value equals 1 if race is white; 0 otherwise.
Black	Value equals 1 if race is black; 0 otherwise.
Other	Value equals 1 if race is not black or white; 0 otherwise.

^a Bullets signify that the health conditions were included within the same condition in the HRS.

Note: A data appendix is available upon request that contains further information regarding these variables.

Table 2. Descriptive Statistics for Variables, By Gender

Variable	Men	Women	Variable	Men	Women
Spell Length			Experience	1.024 (0.280)	0.687 (0.265)
Apply	0.562 (0.021)	0.534 (0.023)	Tenure	14.879 (9.435)	9.395 (6.838)
Policy			Tenure Missing	0.179 (0.016)	0.193 (0.018)
State Allowance Rate (Year 1)	0.371 (0.073)	0.368 (0.068)	A lot of Physical Effort	0.678 (0.019)	0.643 (0.022)
State Allowance Rate (Year 5)	0.360 (0.066)	0.359 (0.065)	Heavy Lifting	0.486 (0.021)	0.442 (0.023)
State Allowance Rate (Year 10)	0.370 (0.066)	0.369 (0.070)	Stoop, Kneel, and Crouching	0.585 (0.021)	0.496 (0.023)
Expected SSDI Benefit (Year 1)	6.878 (2.437)	4.352 (1.945)	Good Eyesight	0.890 (0.013)	0.919 (0.013)
Expected SSDI Benefit (Year 5)	7.445 (2.367)	4.687 (1.987)	Intense Concentration	0.869 (0.014)	0.890 (0.014)
Expected SSDI Benefit (Year 10)	7.877 (2.015)	5.060 (1.796)	Keep Pace With Others	0.657 (0.020)	0.697 (0.021)
Employer Accommodation	0.266 (0.018)	0.267 (0.020)	Skill Dealing with People	0.754 (0.018)	0.821 (0.018)
Economic			White Collar	0.159 (0.015)	0.153 (0.017)
Expected Earnings (Year 1)	17.233 (13.878)	9.544 (7.428)	Manager	0.091 (0.012)	0.056 (0.011)
Expected Earnings (Year 5)	18.175 (12.819)	9.959 (8.003)	Professional	0.069 (0.011)	0.097 (0.014)
Expected Earnings (Year 10)	20.104 (10.700)	10.483 (7.090)	Sales	0.048 (0.009)	0.097 (0.014)
State Unemployment Rate (Year 1)	0.071 (0.021)	0.069 (0.019)	Clerical	0.055 (0.010)	0.235 (0.020)
State Unemployment Rate (Year 5)	0.069 (0.020)	0.068 (0.020)	Service	0.087 (0.012)	0.292 (0.021)
State Unemployment Rate (Year 10)	0.069 (0.022)	0.068 (0.020)	Craftsperson	0.283 (0.019)	0.043 (0.009)
Spouse Works at Onset	0.503 (0.021)	0.543 (0.023)	Laborer	0.354 (0.020)	0.179 (0.018)
Spouse Doesn't Work at Onset	0.329 (0.020)	0.119 (0.015)	Military	0.012 (0.005)	0.000 (0.000)
No Savings at Onset	0.166 (0.015)	0.192 (0.018)	Occupation Missing	0.026 (0.007)	0.019 (0.006)

Table 2 (Cont'd). Descriptive Statistics for Variables, By Gender

Variable	Men	Women	Variable	Men	Women
Accident at Work	0.307 (0.019)	0.237 (0.020)	Union Missing	0.184 (0.016)	0.127 (0.015)
Caused by Nature of Work	0.500 (0.021)	0.391 (0.022)	Veteran	0.542 (0.021)	0.004 (0.003)
Agriculture	0.034 (0.008)	0.015 (0.006)	Health		
Mining	0.141 (0.014)	0.004 (0.003)	Two Health Conditions at Onset	0.219 (0.017)	0.259 (0.020)
Manufacturing	0.336 (0.020)	0.218 (0.019)	Three or More Health Conditions at Onset	0.123 (0.014)	0.157 (0.017)
Transportation	0.145 (0.015)	0.041 (0.009)	Cancer	0.028 (0.028)	0.049 (0.010)
Wholesale, Retail, Financial Service	0.143 (0.015)	0.273 (0.020)	Musculoskeletal	0.493 (0.021)	0.675 (0.022)
Professional Service	0.039 (0.008)	0.117 (0.015)	Paralysis	0.036 (0.008)	0.021 (0.007)
Public Administration	0.088 (0.012)	0.303 (0.021)	Cardiovascular	0.363 (0.020)	0.159 (0.017)
Industry Missing	0.073 (0.011)	0.028 (0.008)	Respiratory	0.109 (0.013)	0.104 (0.014)
Less than 5 Employees	0.031 (0.007)	0.021 (0.007)	Endocrine, Digestive	0.118 (0.013)	0.110 (0.014)
5-14 Employees	0.045 (0.009)	0.066 (0.011)	Neurological	0.073 (0.011)	0.093 (0.013)
15-24 Employees	0.067 (0.010)	0.071 (0.012)	Miscellaneous	0.047 (0.009)	0.074 (0.012)
25-99 Employees	0.039 (0.008)	0.039 (0.009)	Demographic		
100-499 Employees	0.144 (0.015)	0.141 (0.016)	Education	0.109 (0.035)	0.115 (0.027)
500 or more Employees	0.134 (0.014)	0.145 (0.016)	Age	0.497 (0.065)	0.477 (0.065)
Employer Size Missing	0.572 (0.021)	0.538 (0.023)	Spouse	0.828 (0.016)	0.659 (0.022)
Pension	0.185 (0.016)	0.129 (0.015)	White	0.666 (0.020)	0.675 (0.022)
Pension Missing	0.703 (0.019)	0.514 (0.023)	Black	0.199 (0.017)	0.219 (0.019)
Union	0.099 (0.012)	0.133 (0.016)	Other	0.135 (0.014)	0.106 (0.014)
	0.450 (0.021)	0.247 (0.020)			

Source: Authors' calculations based on Wave 1 of the HRS data. Sample size for men is 577. Sample size for women is 472

Table 3. Kaplan-Meier Estimates of the Time to Application for SSDI for Men and Women^a

Year	Men (n=577)				Women (n=472)			
	Survival Rate	Apply	Censor	Hazard	Survival Rate	Apply	Censor	Hazard
1	1.00	94	14	0.16	1.00	63	7	0.13
2	0.84	69	22	0.15	0.87	55	25	0.14
3	0.71	47	25	0.13	0.74	27	23	0.09
4	0.62	23	9	0.08	0.68	24	21	0.09
5	0.57	22	19	0.08	0.62	16	17	0.07
6	0.52	20	22	0.09	0.57	13	21	0.07
7	0.48	10	15	0.05	0.53	14	19	0.09
8	0.45	8	21	0.05	0.48	7	15	0.06
9	0.43	6	14	0.05	0.45	6	9	0.06
10	0.41	4	11	0.04	0.43	5	10	0.06
Total		324	253			252	220	

^a Onset of a disability is defined as the year the health condition first began to bother the person.

Note: Less than 100 persons have spell lengths that exceed 10 years. The maximum observed spell length is 19 periods. Totals capture the number for all observations in the sample.

Source: Authors' calculations based on Wave 1 of the HRS data.

Table 4. Percentage of Workers within the First Year of the Onset of a Disability Living in a State with an Allowance Rate Above the Kernel Density Estimates Intersection Point^a

Gender	Percentage of Persons Above Intersection		Difference	T-value
	Apply	Not Apply	(Apply – Not Apply)	
Men ^b	38.3 (5.00)	32.9 (2.14)	5.38 (5.49)	0.98
Women ^c	68.2 (5.73)	53.4 (2.38)	14.8 (6.21)	2.38

^a The onset of a disability is defined as the year the health condition first began to bother.

^b Kernel Density Estimates cross at an initial state allowance rate of 0.395.

^c Kernel Density Estimates cross at an initial state allowance rate of 0.355.

Source: Authors' calculations based on the Lewin Group (1995) initial state allowance rates merged to Wave 1 of the HRS data.

Table 5. Kaplan-Meier Estimates of the Time to Application for SSDI for Men, By Employer Accommodation^a

Period	Not Accommodated (n=426)				Accommodated (n=153)				Hazard Difference	
	Survival Rate	Apply	Censor	Hazard	Survival Rate	Apply	Censor	Hazard	Estimate	T-Value
1	1.00	88	6	0.21	1.00	6	8	0.04	-0.17	-6.59
2	0.79	57	10	0.17	0.96	12	12	0.09	-0.08	-2.59
3	0.65	39	19	0.15	0.87	8	6	0.07	-0.08	-2.45
4	0.55	16	5	0.08	0.81	7	4	0.07	-0.01	-0.24
5	0.51	18	11	0.10	0.75	4	8	0.05	-0.05	-1.67
6	0.46	15	15	0.10	0.72	5	7	0.07	-0.03	-0.87
7	0.41	7	13	0.06	0.67	3	2	0.05	-0.01	-0.35
8	0.39	5	10	0.05	0.64	3	11	0.05	0.00	0.14
9	0.37	4	10	0.05	0.60	2	4	0.04	-0.01	-0.04
10	0.35	4	6	0.05	0.58	0	5	0.00	-0.05	-2.06
Total		267	159			58	95			

Cox Proportional Hazard Model Estimates

Variable	Estimate	Std. Error	Relative Risk
Accommodation	-0.82	0.15	0.44

^a Onset of a disability is defined as the year the health condition first began to bother the person.

Note: Less than 100 persons have spell lengths that exceed 10 years. The maximum observed spell length is 19 periods. Totals capture the number for all observations in the sample.

Source: Authors' calculations based on Wave 1 of the HRS data.

Table 6. Kaplan-Meier Estimates of the Time to Application for SSDI for Women, By Employer Accommodation^a

Period	Not Accommodated (n=347)				Accommodated (n=127)				Hazard Difference	
	Survival Rate	Apply	Censor	Hazard	Survival Rate	Apply	Censor	Hazard	Difference	T-Value
1	1.00	58	4	0.17	1.00	5	3	0.04	-0.13	-4.81
2	0.83	48	16	0.17	0.96	7	9	0.06	-0.11	-3.51
3	0.69	20	16	0.09	0.90	7	7	0.07	-0.02	-0.72
4	0.62	20	11	0.11	0.84	5	10	0.06	-0.05	-1.49
5	0.55	12	13	0.08	0.79	4	4	0.06	-0.03	-0.73
6	0.51	12	10	0.10	0.74	1	10	0.02	-0.08	-2.58
7	0.46	10	14	0.10	0.73	4	5	0.08	-0.02	-0.50
8	0.41	6	10	0.08	0.68	1	5	0.02	-0.05	-1.43
9	0.38	5	6	0.08	0.66	1	3	0.03	-0.05	-1.24
10	0.35	2	7	0.04	0.64	3	3	0.09	0.05	0.89
Total		203	144			50	77			

Cox Proportional Hazard Estimates

Variable	Estimate	Standard Error	Relative Risk
Accommodation	-0.85	0.18	0.43

^a Onset of a disability is defined as the year the health condition first began to bother the person.

Note: Less than 100 persons have spell lengths that exceed 10 years. The maximum observed spell length is 19 periods. Totals capture the number for all observations in the sample.

Source: Authors' calculations based on Wave 1 of the HRS data.

Table 7. Hazard Model Estimates of the Risk of SSDI Application following the Onset of a Disability^a

Variables	Men		Women	
	Coefficient	T-Value	Coefficient	T-Value
Constant	-3.12	-2.81	-4.63	-3.14
State Allowance Rate	2.06	2.00	3.93	2.73
Expected SSDI Benefit	0.26	4.21	0.51	5.97
Accommodation	-0.77	-3.45	-0.69	-2.71
Expected Earnings	-0.07	-6.41	-0.17	-7.01
State Unemployment Rate	8.28	2.38	10.49	2.27
Experience	-0.30	-0.67	-1.05	-2.03
White Collar Job	-0.08	-0.36	-0.64	-2.06
Two Health Conditions ^b	0.50	2.56	0.47	2.08
Three Health Conditions ^b	0.95	3.41	1.02	3.35
Musculoskeletal ^c	-0.85	-4.08	-0.69	-3.06
Cardiovascular ^c	0.09	0.50	-0.04	-0.13
Education	-6.00	-2.26	-6.67	-1.76
Age	4.30	2.76	6.61	3.35
Married	0.16	0.80	-0.24	-1.21
Black	0.69	3.10	0.61	2.32
Other Race	0.39	1.55	0.12	0.35
SSA Record Missing	0.02	0.12	0.40	1.84
Time	-0.54	-0.56	0.14	-0.16
Time Squared	-0.01	-0.01	0.01	0.01
Variance of Heterogeneity	0.78	1.09	0.96	1.98
Log-Likelihood	902.93		709.73	
Sample Size	577		472	

^a Onset of a disability is defined as the year the health condition first began to bother the person.

^b Reference category is one health condition at onset.

^c Reference category is all other health conditions.

^d Reference category is white race.

Source: Authors' calculations based on Wave 1 of the HRS data.

Table 8. Estimated Probabilities of Men and Women Applying for SSDI within 5, 10 and 15 years of the Onset of a Disability^a

Variable	Men				Women			
	Probability of Application			Expected Duration	Probability of Application			Expected Duration
	Within 5 years	Within 10 years	Within 15 years		Within 5 years	Within 10 years	Within 15 years	
Expected Value	0.34	0.54	0.66	10.45	0.27	0.49	0.68	10.99
State Allowance Rate ^b	0.04	0.05	0.06	-0.83	0.06	0.10	0.11	-1.47
Expected SSDI Benefit ^b	0.10	0.14	0.15	-2.08	0.11	0.17	0.19	-2.39
Accommodation	-0.15	-0.20	-0.21	3.13	-0.12	-0.16	-0.19	2.62
Expected Earnings ^b	-0.07	-0.09	-0.10	1.46	-0.07	-0.12	-0.13	1.68
State Unemployment Rate ^b	0.03	0.04	0.04	-0.64	0.03	0.05	0.05	-0.74
Experience ^b	-0.02	-0.02	-0.02	0.34	-0.03	-0.05	-0.05	0.74
White Collar Job	-0.02	-0.03	-0.03	0.41	-0.12	-0.20	-0.20	2.81
Two Health Conditions	0.11	0.14	0.14	-2.18	0.08	0.12	0.13	-1.79
Three Health Conditions	0.23	0.30	0.31	-4.63	0.20	0.30	0.32	-4.44
Musculoskeletal	-0.12	-0.15	-0.16	2.38	-0.05	-0.08	-0.08	1.16
Cardiovascular	0.02	0.02	0.02	-0.33	-0.01	-0.01	-0.01	0.16
Education ^b	-0.03	-0.05	-0.05	0.73	-0.04	-0.05	-0.06	0.79
Age ^b	0.12	0.15	0.16	-2.37	0.14	0.22	0.23	-3.25
Married	0.01	0.01	0.01	-0.15	-0.02	-0.03	-0.03	0.42
Black	0.15	0.20	0.20	-3.07	0.11	0.16	0.17	-2.44
Other	0.09	0.12	0.12	-1.88	0.03	0.04	0.04	-0.54
SSA Record Missing	0.00	0.01	0.01	-0.08	0.07	0.10	0.11	-1.48

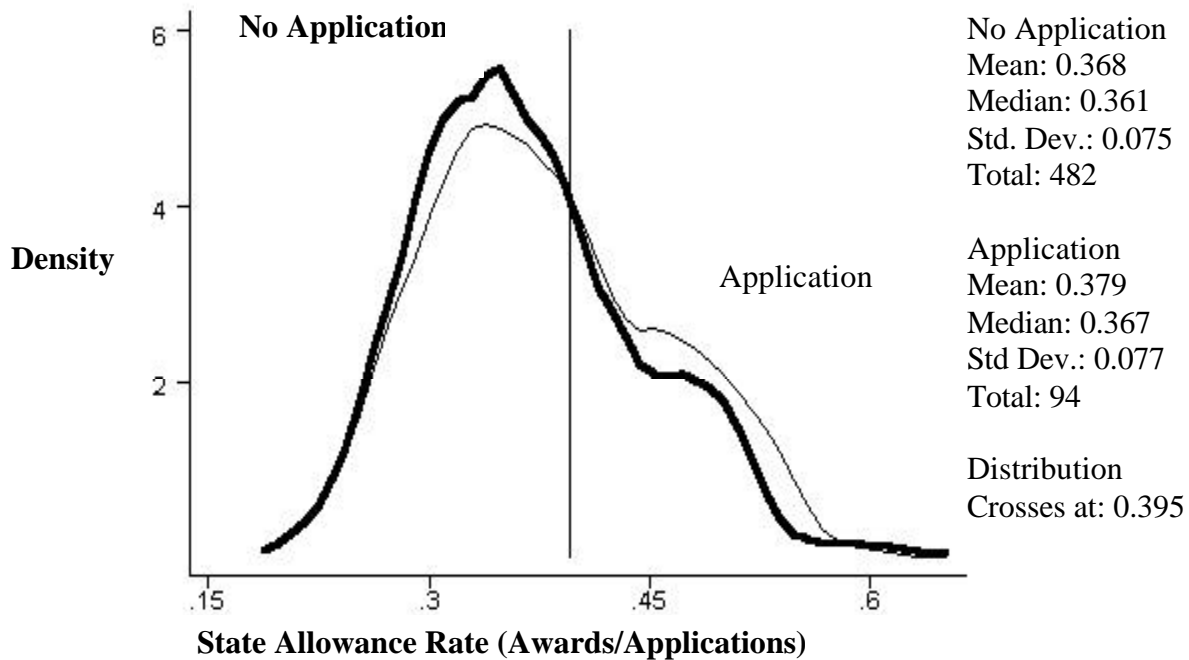
^a Onset of a disability is defined as the year the health condition first began to bother the person.

^b Marginal effect based on a 20 percent increase evaluated at the mean.

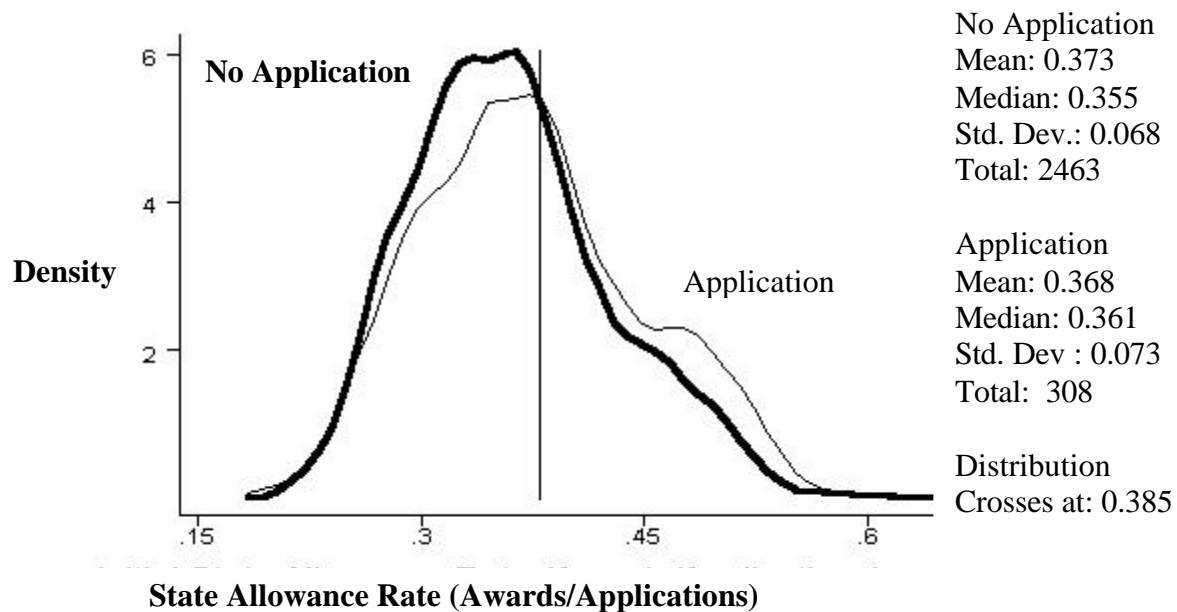
Note: Reference Categories are the same as in Table 8. All dummy variables are measured as a change from the sample mean to a value of 1.

Source: Authors' calculations based on Wave 1 of the HRS data.

Figure 1. Kernel Density Estimates of the Distribution of Male Applicants and Non-Applicants Within the First Year Following the Onset of a Disability Ordered by the State Allowance Rate^a



Within First 10 Years Following the Onset of a Disability^b

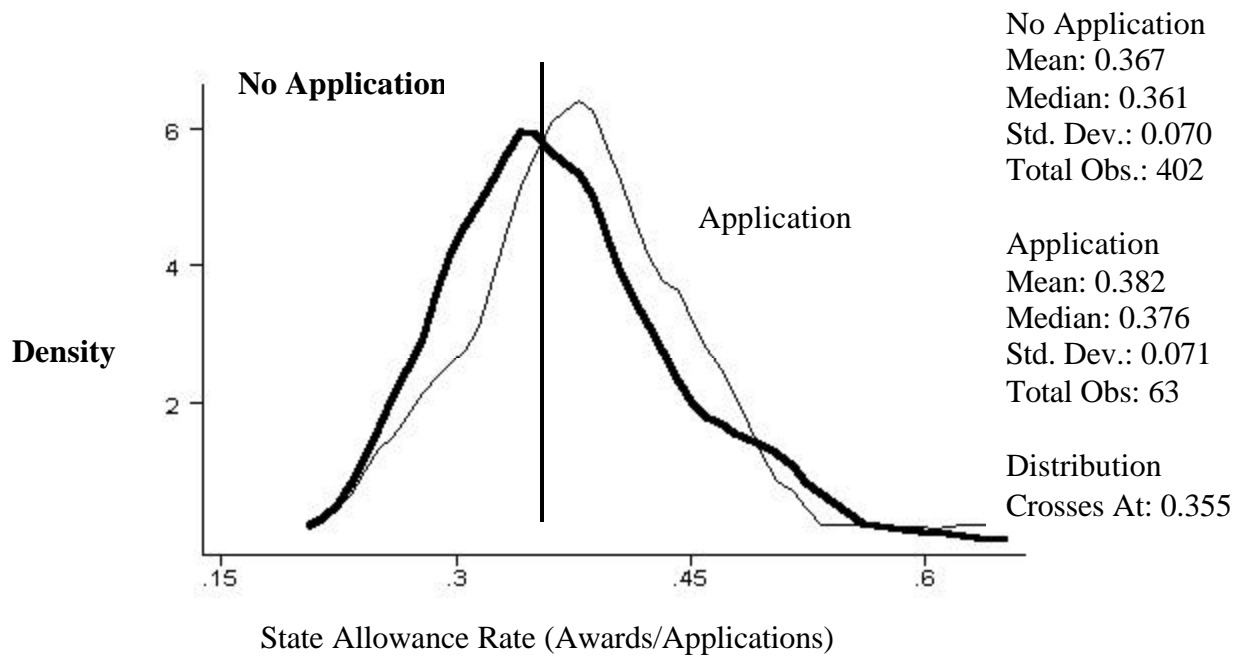


^a Onset of a disability is defined as the year the health condition first began to bother.

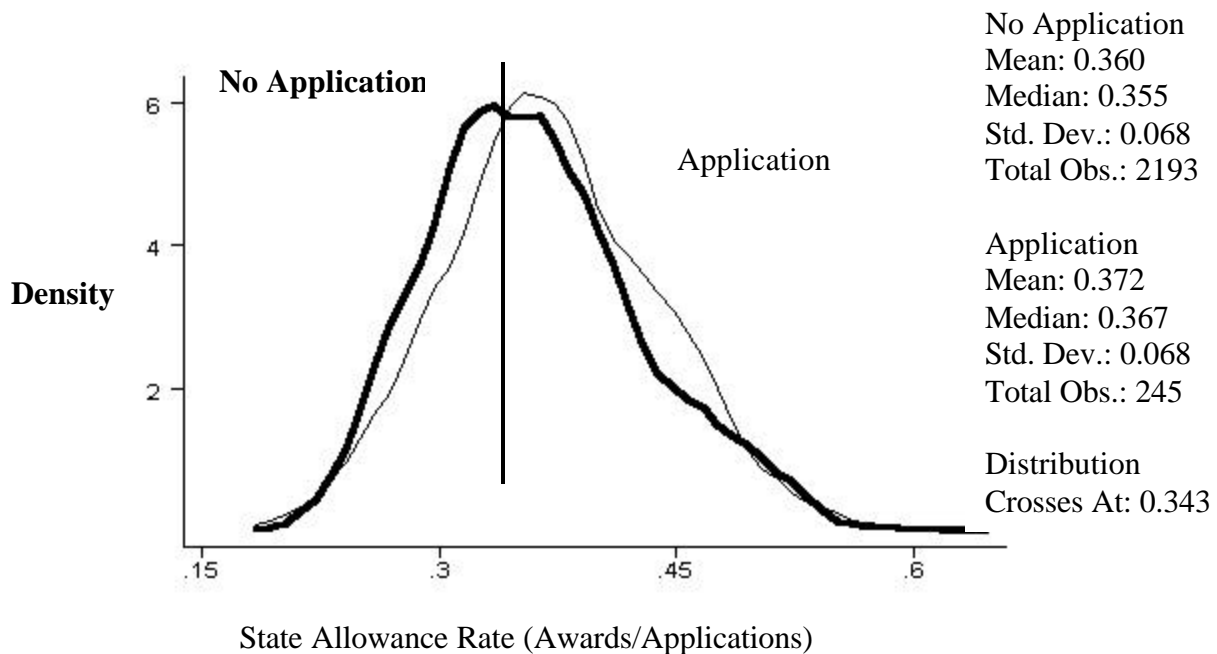
^b Includes all person-year pairs for the first ten years following onset.

Source: Authors' calculations based on Wave 1 of the HRS data.

Figure 2. Kernel Density Estimates of the Distribution of Female Applicants and Non-Applicants Within the First Year Following the Onset of a Disability Ordered by Initial State Allowance Rate.^a



Within First 10 Years Following the Onset of a Disability^b



^a Onset of a disability is defined as the year the health condition first began to bother.

^b Includes all person-year pairs for the first ten years following onset.

Source: Authors' calculations based on Wave 1 of the HRS data.

Appendix Table 1. Descriptive Statistics for Variables, By Gender

Variable	Men	Women	Variable	Men	Women
Spell Length			Experience	1.014 (0.290)	0.682 (0.273)
Apply	0.587 (0.021)	0.550 (0.023)	Tenure	15.150 (9.688)	9.424 (6.900)
Policy			Tenure Missing	0.131 (0.014)	0.145 (0.016)
State Allowance Rate (Year 1)	0.371 (0.075)	0.365 (0.069)	A lot of Physical Effort	0.713 (0.019)	0.662 (0.022)
State Allowance Rate (Year 5)	0.362 (0.065)	0.364 (0.065)	Heavy Lifting	0.509 (0.021)	0.459 (0.023)
State Allowance Rate (Year 10)	0.366 (0.065)	0.379 (0.071)	Stoop, Kneel, and Crouching	0.603 (0.020)	0.517 (0.023)
Expected SSDI Benefit (Year 1)	7.018 (2.282)	4.446 (1.855)	Good Eyesight	0.899 (0.013)	0.912 (0.013)
Expected SSDI Benefit (Year 5)	7.442 (2.247)	4.695 (1.873)	Intense Concentration	0.877 (0.014)	0.886 (0.015)
Expected SSDI Benefit (Year 10)	7.938 (1.810)	4.951 (1.532)	Keep Pace With Others	0.659 (0.020)	0.705 (0.021)
Employer Accommodation	0.270 (0.019)	0.271 (0.021)	Skill Dealing with People	0.754 (0.018)	0.818 (0.018)
Economic			White Collar	0.155 (0.015)	0.152 (0.017)
Expected Earnings (Year 1)	16.389 (14.083)	9.143 (6.672)	Manager	0.083 (0.012)	0.061 (0.011)
Expected Earnings (Year 5)	17.363 (11.812)	10.201 (6.921)	Professional	0.074 (0.011)	0.091 (0.013)
Expected Earnings (Year 10)	16.387 (13.813)	9.868 (8.706)	Sales	0.050 (0.009)	0.096 (0.014)
State Unemployment Rate (Year 1)	0.071 (0.021)	0.068 (0.020)	Clerical	0.056 (0.010)	0.226 (0.019)
State Unemployment Rate (Year 5)	0.069 (0.020)	0.067 (0.019)	Service	0.056 (0.010)	0.226 (0.019)
State Unemployment Rate (Year 10)	0.069 (0.022)	0.066 (0.023)	Craftsperson	0.282 (0.019)	0.044 (0.009)
Spouse Works at Onset	0.503 (0.021)	0.537 (0.023)	Laborer	0.355 (0.020)	0.187 (0.018)
Spouse Doesn't Work at Onset	0.325 (0.020)	0.124 (0.015)	Military	0.011 (0.004)	0.000 (0.000)
No Savings at Onset	0.167 (0.016)	0.203 (0.019)	Occupation Missing	0.026 (0.007)	0.019 (0.006)

Appendix Table 1 (Cont'd). Descriptive Statistics for Variables, By Gender

Variable	Men	Women	Variable	Men	Women
Accident at Work	0.320 (0.020)	0.230 (0.019)	Union Missing	0.191 (0.016)	0.128 (0.015)
Caused by Nature of Work	0.509 (0.021)	0.397 (0.023)	Veteran	0.554 (0.021)	0.004 (0.003)
Agriculture	0.038 (0.008)	0.017 (0.006)	Health		
Mining	0.146 (0.015)	0.007 (0.004)	Two Health Conditions at Onset	0.222 (0.017)	0.256 (0.020)
Manufacturing	0.335 (0.020)	0.220 (0.019)	Three or More Health Conditions at Onset	0.130 (0.014)	0.165 (0.017)
Transportation	0.141 (0.015)	0.039 (0.009)	Cancer	0.026 (0.007)	0.049 (0.010)
Wholesale, Retail, Financial Service	0.137 (0.014)	0.257 (0.020)	Musculoskeletal	0.506 (0.021)	0.682 (0.022)
Professional Service	0.038 (0.008)	0.113 (0.015)	Paralysis	0.037 (0.008)	0.021 (0.007)
Public Administration	0.090 (0.012)	0.318 (0.022)	Cardiovascular	0.363 (0.020)	0.160 (0.017)
Industry Missing	0.074 (0.011)	0.028 (0.008)	Respiratory	0.109 (0.013)	0.105 (0.014)
Less than 5 Employees	0.031 (0.007)	0.021 (0.007)	Endocrine, Digestive	0.117 (0.013)	0.109 (0.014)
5-14 Employees	0.046 (0.009)	0.060 (0.011)	Neurological	0.074 (0.011)	0.098 (0.014)
15-24 Employees	0.068 (0.011)	0.067 (0.012)	Emotional	0.026 (0.007)	0.060 (0.011)
25-99 Employees	0.042 (0.008)	0.037 (0.009)	Miscellaneous	0.047 (0.009)	0.075 (0.012)
100-499 Employees	0.147 (0.015)	0.149 (0.016)	Demographic		
500 or more Employees	0.134 (0.014)	0.141 (0.016)	Education	0.108 (0.036)	0.115 (0.027)
Employer Size Missing	0.564 (0.021)	0.546 (0.023)	Age	0.503 (0.064)	0.485 (0.063)
Pension	0.192 (0.016)	0.134 (0.016)	Spouse	0.823 (0.016)	0.661 (0.022)
Pension Missing	0.700 (0.019)	0.513 (0.023)	White	0.670 (0.020)	0.682 (0.022)
Union	0.101 (0.013)	0.130 (0.016)	Black	0.206 (0.017)	0.216 (0.019)
	0.458 (0.021)	0.254 (0.020)	Other	0.124 (0.014)	0.103 (0.014)

Source: Authors' calculations based on Wave 1 of the HRS data. Sample size for men is 572. Sample size for women is 469.

Appendix Table 2. Difference in Years between the Year the Condition First Began to Bother and the Year the Condition First Began to Interfere with the Job, by Gender

Difference	Men			Women		
	Number	Percentage	Cumulative Percentage	Number	Percentage	Cumulative Percentage
Negative	9	0.5	1.1	8	1.3	1.3
0	554	69.2	70.3	395	65.3	66.6
1	59	7.4	77.7	58	9.6	76.2
2	31	3.9	81.5	25	4.1	80.3
3	20	2.5	84	22	3.6	84
4	15	1.9	85.9	11	1.8	85.8
5	15	1.9	87.8	15	2.5	88.3
6	7	0.9	88.6	11	1.8	90.1
7	6	0.7	89.4	5	0.8	90.9
8	2	0.2	89.6	5	0.8	91.7
9	5	0.6	90.3	5	0.8	92.6
10	5	0.6	90.9	10	1.7	94.2
Greater than 10	42	5.2	96.1	22	3.7	97.9
Never Interfere	31	3.9	100	13	2.1	100

Source: Authors' calculations based on Wave 1 of the HRS data.

Appendix Table 3. Kaplan-Meier Estimates of Time to Application for SSDI Men and Women^a

Year	Men (n=572)				Women	
	Survival Rate	Apply	Censor	Hazard	Survival Rate	Apply
1	1.00	115	22	0.20	1.00	81
2	0.80	81	22	0.19	0.82	59
3	0.65	50	18	0.15	0.69	34
4	0.55	17	14	0.07	0.60	25
5	0.51	16	19	0.07	0.53	14
6	0.48	16	22	0.08	0.49	10
7	0.44	11	10	0.07	0.45	11
8	0.41	8	16	0.06	0.41	3
9	0.38	8	14	0.07	0.40	7
10	0.36	5	10	0.05	0.36	3
Total		336	236			258

^a Onset of a disability is defined as the year the health condition first began to interfere with the person's work.

Note: Less than 100 persons have spell lengths that exceed 10 years. The maximum observed spell length is 19 periods. Totals capture the number for all observations in the sample.

Source: Authors' calculations based on Wave 1 of the HRS data.

Appendix Table 4. Mean of Each State's SSDI Allowance and Unemployment Rates from 1974 through 1993

Current State of Residence	State Allowance Rate (Percentage)		State Unemployment Rate (Percentage)	
	Mean	Standard Deviation	Mean	Standard Deviation
Alabama	32	4.8	8.4	2.4
Arizona	41	6.0	6.9	1.6
Arkansas	32	5.6	7.6	1.4
California	37	7.5	7.5	1.5
Colorado	40	5.8	6.0	1.0
Connecticut	45	8.9	5.8	1.7
Delaware	48	4.7	6.5	1.9
District of Columbia	39	8.0	8.0	1.6
Florida	37	6.4	6.9	1.5
Georgia	33	7.2	6.3	1.0
Illinois	37	5.8	7.4	1.8
Indiana	40	7.3	7.2	2.1
Iowa	44	8.7	5.3	1.7
Kansas	41	5.2	4.6	0.8
Kentucky	33	3.8	7.4	2.0
Louisiana	28	8.4	8.7	2.2
Maine	44	6.1	6.8	1.8
Maryland	37	5.1	5.8	1.2
Massachusetts	44	7.8	6.4	2.2
Michigan	37	6.8	9.6	2.6
Minnesota	45	7.5	5.4	1.1
Mississippi	31	5.9	8.5	2.0
Missouri	38	6.8	6.4	1.3
Montana	37	6.5	6.8	1.0
Nebraska	43	6.1	3.8	1.1
Nevada	39	6.9	7.0	1.8
New Hampshire	42	5.5	5.1	1.7
New Jersey	48	9.4	6.9	2.0
New Mexico	28	5.3	7.6	1.3
New York	41	9.2	7.3	1.6
North Carolina	40	6.1	5.8	1.6
North Dakota	42	5.9	4.6	1.0
Ohio	42	7.8	7.6	2.2
Oklahoma	33	6.7	5.9	1.5
Oregon	37	6.7	7.9	1.9
Pennsylvania	39	7.4	7.4	1.8
Rhode Island	48	4.7	6.9	2.1
South Carolina	37	4.7	6.8	1.7
South Dakota	46	4.5	4.0	0.9
Tennessee	35	6.4	7.1	2.0
Texas	34	6.2	6.3	1.3
Utah	45	5.9	5.6	1.4
Vermont	46	5.3	6.0	1.8
Virginia	36	3.4	5.3	1.0
Washington	40	8.4	8.0	1.8
West Virginia	30	8.3	10.2	3.1
Wisconsin	46	6.5	6.2	1.9
Wyoming	39	5.1	5.5	1.8
Total	39	8.2	6.7	2.1

Source: Authors' calculations based on the Lewin Group (1995) data on state allowance and unemployment rates from 1974 through 1993.

Appendix Table 5. Mean of All State Allowance and Unemployment Rates for 1974 through 1993

Year	State Allowance Rate (Percentage)		State Unemployment Rate (Percentage)	
	Mean	Standard Deviation	Mean	Standard Deviation
1974	49	6.2	5.4	1.5
1975	50	6.3	7.8	2.1
1976	48	5.6	7.2	1.9
1977	45	5.6	6.7	1.6
1978	40	6.7	5.7	1.5
1979	36	6.7	5.6	1.4
1980	34	5.5	6.8	1.6
1981	32	4.7	7.3	1.9
1982	31	4.7	9.3	2.3
1983	34	5.9	9.3	2.5
1984	36	6.3	7.3	2.2
1985	37	6.7	7.1	1.9
1986	40	6.7	7.0	2.2
1987	37	6.7	6.3	2.1
1988	37	6.8	5.5	1.9
1989	37	6.7	5.1	1.3
1990	39	6.8	5.4	1.1
1991	41	7.1	6.4	1.5
1992	42	7.0	6.8	1.6
1993	39	6.3	6.3	1.5
Total	39	8.2	6.7	2.1

Source: Authors' calculations based on the Lewin Group (1995) data on state level allowance and unemployment rates from 1974 through 1993.

Appendix Table 6. Percentage of Workers within the First Year of the Onset of a Disability Living in a State with an Allowance Rate Above the Kernel Density Estimates Intersection

Gender	Percentage of Persons Above Intersection		Difference (Apply – Do Not Apply)	
	Apply Within Year 1	Do Not Apply Within Year 1	Difference	T-value
Men ^a	34.78 (4.44)	25.50 (2.05)	9.28 (4.89)	1.91
Women ^b	60.24 (5.37)	50.00 (2.46)	10.24 (5.91)	1.73

^a The onset of a disability is defined as the year the health condition first began to interfere with work.

^b Kernel Density Estimates cross at an initial state allowance rate of 0.408.

^c Kernel Density Estimates cross at an initial state allowance rate of 0.355.

Source: Author's calculations based on the Lewin Group (1995) initial state allowance rates merged to Wave 1 of the HRS data.

Appendix Table 7. Hazard Model Estimates of the Risk of SSDI Application Following the Onset of a Disability^a

Variables	Men		Women	
	Coefficient	T-Value	Coefficient	T-Value
Constant	-1.83	-1.78	-2.78	-2.01
State Allowance Rate	2.03	1.91	3.85	2.79
Expected SSDI Benefit	0.13	2.22	0.25	2.85
Employer Accommodation	-0.87	-3.83	-0.51	-2.19
Expected Earnings	-0.06	-5.78	-0.14	-5.49
State Unemployment Rate	6.04	1.75	7.89	1.83
Experience	2.15	1.52	0.82	1.79
White collar	0.12	0.50	-0.31	-1.01
Two Health Conditions ^b	0.17	0.86	0.54	2.34
Three Health Conditions ^b	0.59	2.62	0.82	2.66
Musculoskeletal ^c	0.23	0.87	-0.72	-3.06
Cardiovascular ^c	0.16	0.90	0.04	0.14
Education/100	-6.02	-2.28	-7.11	-1.95
Age/100	0.64	1.41	2.71	1.44
Married	0.33	1.68	-0.28	-1.41
Black ^d	0.80	2.87	0.55	2.07
Other ^d	-0.81	-3.97	-0.09	-0.25
SSA Missing	0.16	0.89	0.43	1.96
Time	-0.31	-0.29	-0.15	-0.13
Time Squared	-0.37	-0.540	0.136	0.21
Variance of Heterogeneity	0.79	1.081	1.002	1.67
Log-Likelihood	884.68		693.74	
Sample Size	572		469	

^a Onset of a disability is defined as the year the condition first began to interfere with the person's work.

^b Reference group is one health condition at onset of a disability.

^c Reference group is all other health conditions at onset of a disability.

^d Reference group is white race.

Source: Authors' calculations based on Wave 1 of the HRS data.

Appendix Table 8. Hazard Model Estimates of the Risk of SSDI Application Following the Onset of a Disability^a

Variable	Men		Women	
	Coefficient	t-value	Coefficient	T-Value
Constant	-4.79	-3.04	-6.37	-3.42
State Allowance Rate	2.54	2.21	3.85	2.56
Expected SSDI Benefits/1000	0.25	3.58	0.57	5.38
Employer Accommodation	-0.76	-3.16	-0.59	-2.22
Expected Earnings/1000	-0.07	-6.13	-0.17	-6.32
State Unemployment Rate	8.88	2.45	9.62	1.90
Spouse Working at Onset ^b	0.17	0.64	0.82	2.52
Spouse Not Working at Onset ^b	0.25	0.96	-0.45	-1.94
No Savings at Onset	0.35	1.43	0.06	0.21
Experience	-0.28	-0.53	-1.52	-2.51
Tenure	0.01	0.57	-0.01	-0.32
Tenure Missing	-1.18	-2.80	-1.52	-2.83
Physical, Heavy, Stooping	0.03	0.13	-0.01	-0.02
Eyes, Intense Concentration	0.26	0.54	0.23	0.45
Pace Set by Others	-0.18	-0.92	-0.06	-0.24
Skill Dealing with People	0.02	0.11	0.21	0.75
Decide Pay of Others	0.19	0.77	0.25	0.75
Professional ^f	-0.09	-0.17	0.19	0.34
Sales ^e	-0.03	-0.05	0.70	1.24
Clerical ^f	-0.22	-0.38	0.62	1.21
Service ^e	0.23	0.52	1.01	1.82
Craftsperson ^e	0.15	0.39	1.43	2.09
Laborer ^e	0.28	0.70	0.75	1.30
Military ^e	-0.19	-0.15		
Missing ^e	0.39	0.72	1.36	1.68
Agriculture ^f	1.11	1.64		
Mining ^f	0.86	1.66		
Manufacturing ^f	0.57	1.17	0.11	0.32
Transportation ^f	0.59	1.14		
Retail, Wholesale, Finance ^f	0.62	1.20		
Service ^f			-0.12	-0.34
Professional Service ^f	-0.08	-0.16		
Public Administration ^f	-0.27	-0.44		
Less than 5 ^g	0.02	0.03	0.99	2.09
Between 5 and 14 ^g	-0.66	-1.65	-0.34	-0.77
Between 15 and 24 ^g	0.05	0.10	-0.14	-0.24
Between 25 and 99 ^g	-0.69	-2.11	0.40	1.22
Between 100 and 499 ^g	0.01	0.04	0.33	0.98
Employer Size Missing ^g	-0.78	-3.26	1.27	0.57

Appendix Table 8 (Cont'd). Hazard Model Estimates of the Risk of SSDI Application Following the Onset of a Disability^a

Variable	Men		Women	
	Coefficient	t-value	Coefficient	t-value
Pension	-0.55	-2.07	0.00	0.01
Pension Missing	0.56	1.13	1.08	1.87
Union status	-0.19	-0.87	-0.03	-0.13
Union status missing			-2.48	-1.09
Result of Accident at Work	0.07	0.27	0.32	1.18
Caused by Nature of Work	0.14	0.69	-0.44	-1.81
Two Health Conditions ^c	0.03	0.15	0.26	1.03
Three Health Conditions ^c	0.09	0.27	0.47	1.55
Cancer ^d	1.04	1.69	1.22	2.81
Paralysis ^d	1.39	3.47	0.86	1.13
Circulatory ^d	0.83	3.26	0.27	0.97
Respiratory ^d	0.30	0.98	0.05	0.13
Endocrine, Digestive ^d	0.39	1.32	0.50	1.59
Nuerological ^d	0.67	1.81	0.33	1.02
Emotional ^d	1.09	2.00	0.47	1.19
Miscellaneous ^d	0.79	2.20	0.62	1.60
Education	-1.23	-0.39	-2.86	-0.65
Age	3.93	2.21	5.98	2.82
Black Race ^h	0.48	1.92	0.41	1.54
Other Race ^h	0.14	0.50	0.06	0.16
SSA Records Missing	0.29	1.43	0.59	2.46
Time	0.15	0.13	0.53	0.45
Time Squared	-0.23	-0.38	-0.18	-0.28
Variance of Heterogeneity	0.77	0.93	0.75	0.79
Log likelihood	865.25		670.88	
Sample Size	577		472	

^a Onset of a disability is defined as the year the condition first began to bother.

^b Reference category is no spouse at the onset of a disability.

^c Reference category is one health condition at onset of a disability.

^d Reference category is a musculoskeletal condition at the onset of a disability.

^e Reference category is manager occupation at the onset of a disability.

^f Reference category is service industry at the onset of a disability for men. Because of very small numbers in other industries, the reference group for women is all other industries.

^g Reference category is 500 or more employees working for the employer at the onset of a disability.

^h Reference category is whites.

Note: Means are in Table 2.

Source: Authors' calculations based on Wave 1 of the HRS data.

Appendix Table 9. Estimated Probabilities of Men and Women Applying for SSDI within 5, 10 and 15 years of the Onset of a Disability^a

Variable	Men				Women			
	Probability of Applying			Expected Duration	Probability of Applying			Expected Duration
	Within 5 years	Within 10 years	Within 15 years		Within 5 years	Within 10 years	Within 15 years	
Expected Value	0.440	0.651	0.734	8.808	0.360	0.600	0.763	9.349
State Allowance Rate ^b	0.048	0.053	0.052	-0.852	0.086	0.112	0.105	-1.645
Expected SSDI Benefit ^b	0.074	0.088	0.087	-1.335	0.092	0.123	0.117	-1.768
Accommodation	-0.205	-0.232	-0.223	3.685	-0.110	-0.141	-0.132	2.106
Expected Earnings ^b	-0.070	-0.076	-0.074	1.249	-0.082	-0.108	-0.102	1.569
State Unemployment Rate ^b	0.027	0.031	0.029	-0.490	0.032	0.041	0.038	-0.615
Experience ^b	0.021	0.024	0.023	-0.376	-0.011	-0.014	-0.013	0.206
White Collar Job	0.032	0.036	0.035	-0.573	-0.087	-0.112	-0.104	1.667
Two Health Conditions	0.085	0.097	0.093	-1.532	0.112	0.144	0.134	-2.150
Three Health Conditions	0.231	0.261	0.251	-4.147	0.215	0.276	0.257	-4.112
Musculoskeletal	-0.131	-0.148	-0.142	2.354	-0.066	-0.085	-0.079	1.261
Cardiovascular	0.034	0.038	0.036	-0.603	0.004	0.005	0.005	-0.081
Education ^b	-0.045	-0.051	-0.049	0.804	-0.050	-0.065	-0.060	0.964
Age ^b	0.082	0.093	0.089	-1.470	0.128	0.164	0.153	-2.445
Married	0.009	0.010	0.010	-0.163	-0.023	-0.030	-0.028	0.442
Black	0.154	0.174	0.167	-2.767	0.118	0.152	0.141	-2.262
Other	0.066	0.074	0.071	-1.177	-0.015	-0.019	-0.018	0.281
SSA Record Missing	0.043	0.049	0.047	-0.776	0.113	0.145	0.135	-2.156

^a Onset of a disability is defined as the year the condition first began to interfere with the person's work.

^b Marginal effect based on a 20 percent increase evaluated at the mean.

Note: Reference Categories are the same as in Table Appendix Table 7. All dummy variables are measured as a change from the sample mean to a value of 1.

Source: Authors' calculations based on Wave 1 of the HRS data.

Appendix: Kernel Density Estimates of the Initial State Allowance Rates

Kernel density estimation is a non-parametric technique for estimating the probability density function of data. Kernel density estimators are similar to histograms in that they show the fraction of total observations for specified intervals of the data. In histograms, the intervals are not allowed to overlap and fraction of total observations that fall into the interval are assigned to the mid-point of the interval. A bar graph that assigns the fraction of all observations that fall within the interval to each value within the interval is used to describe the data.

In kernel density estimation, intervals are allowed to overlap resulting in a smoothed picture of the distribution. Estimation of the distribution is accomplished by sliding a window, or kernel, over the entire range of the data and placing progressively smaller weight on observations further away from the center of the window. The weighted average of observations within the window is assigned to the mid-point of the window as it slides along the entire range of the data. A kernel function is used to assign the weights. In theory, any kernel that integrates to 1 over its support will lead to consistent estimates of the distribution (Silverman, 1986).

The first step in kernel density estimation is the choice of the kernel function and the width of the sliding window, called the bandwidth. The Epanechnikov kernel is a popular choice for the kernel and it is the one used to estimate the distributions in this paper. Equation A-1 shows the mathematical form of the Epanechnikov kernel.

$$K[z] = \begin{cases} \frac{3}{4\sqrt{5}} \left(1 - \frac{1}{5} z^2\right) & \text{if } |z| < \sqrt{5} \\ 0 & \text{otherwise} \end{cases} \quad (\text{A-1})$$

$$\text{where } z = \left[\frac{x - X_i}{h} \right]$$

In these equations z represents the standardized distance from the center of the window. In the computation of z , x is the center, X_i is the observed value of the data and h is the bandwidth.

A standard bandwidth used in kernel density estimation is the width that would minimize the mean square error if the data were from a normal distribution. The mathematical representation of this width is shown in A-2.

$$h = \frac{0.9m}{n^{\frac{1}{5}}}, \text{ where } m = \min \left(\sqrt{\text{Variance}_x}, \frac{\text{Interquartile Range}_x}{1.349} \right) \quad (\text{A-2})$$

In equation A-2, x represents the entire set of data—for example, the set of allowance rates for disabled men—and n represents the number of observations.

The kernel density estimator is then determined as a weighted average as shown in equation A-3.

$$\hat{f}_k = \frac{1}{nh} \sum_{i=1}^n K[z] \quad (\text{A-3})$$

The Kolmogorov-Smirnov test for equality for two samples is used to test the hypothesis that the distribution of allowance rates for persons who applied for SSDI within the first period is the same as the distribution for those who had not applied for SSDI within the first period. The cumulative distribution function for persons who applied is represented by $F_A(x)$ and the distribution of allowance rates for persons who did not apply within the first period is represented by $F_N(x)$. The null hypothesis of the test is that the cumulative density functions are the same for the entire range of a random variable x. Equation A-4 describes the null hypothesis.

$$\begin{aligned} H_0 : F_N(x) &= F_A(x) \quad \text{for } -\infty \leq x \leq \infty \\ H_A : &\text{The hypothesis } H_0 \text{ is not true.} \end{aligned} \quad (\text{A-4})$$

A test statistic, denoted D_{mn} , has been derived (Degroot, 1986) based on a standardized difference in Cumulative Density Functions as shown in equation A-5.

$$D_{m,n} = \left(\frac{mn}{m+n} \right)^{\frac{1}{2}} \cdot \sup_{-\infty \leq x \leq \infty} |F_N(x) - F_A(x)| \quad (\text{A-5})$$

In equation A-5, m represents the number of observed persons who had applied for the program and n represents the number of observed persons that did not apply for the program. The limiting distribution of this test statistics can be found in DeGroot (1986) or any other intermediate statistics textbook and probabilities for realized values of the test statistic are in DeGroot (1986) on page 555.